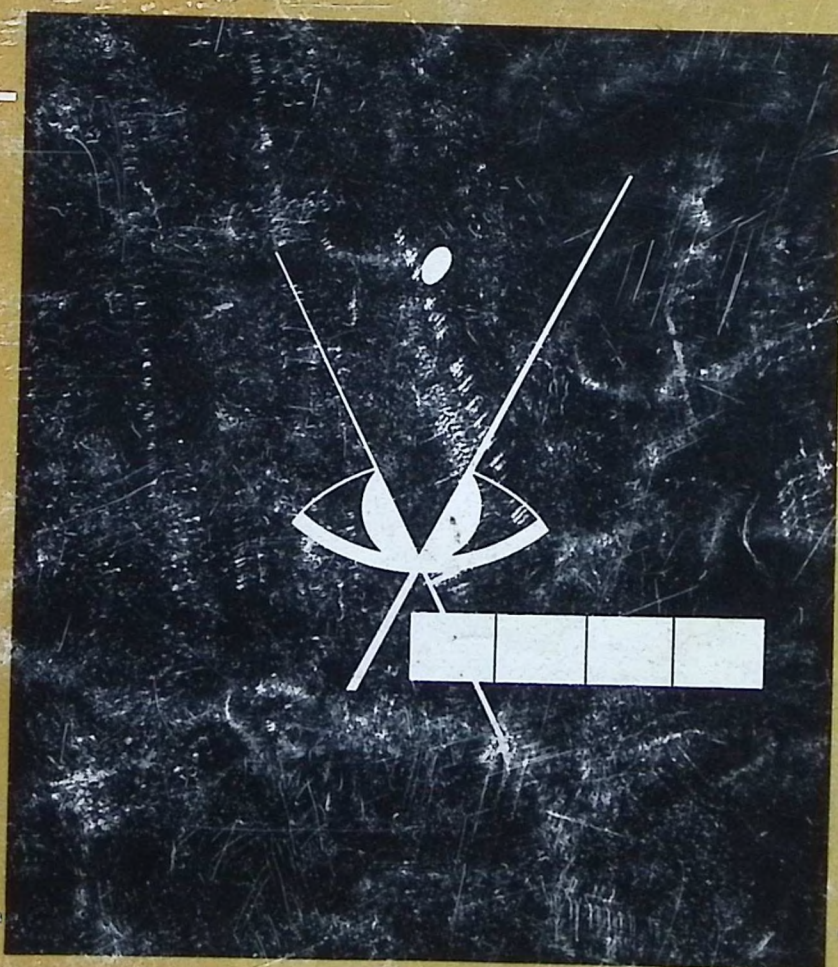


AUTO-PHOTO

MODEL 14 STUDIO

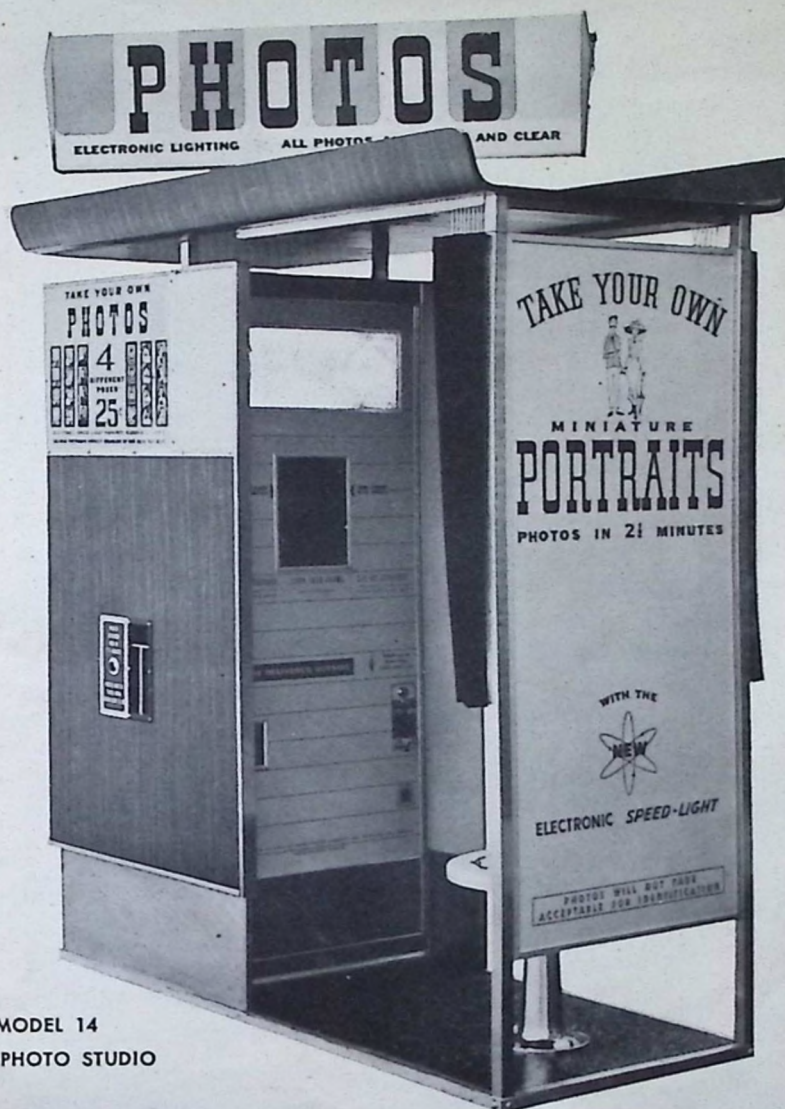


OPERATING GUIDE AND PARTS CATALOG

PRICE—TEN DOLLARS

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MODEL 14
AUTO-PHOTO STUDIO

UNDERWRITERS' LABORATORY APPROVED



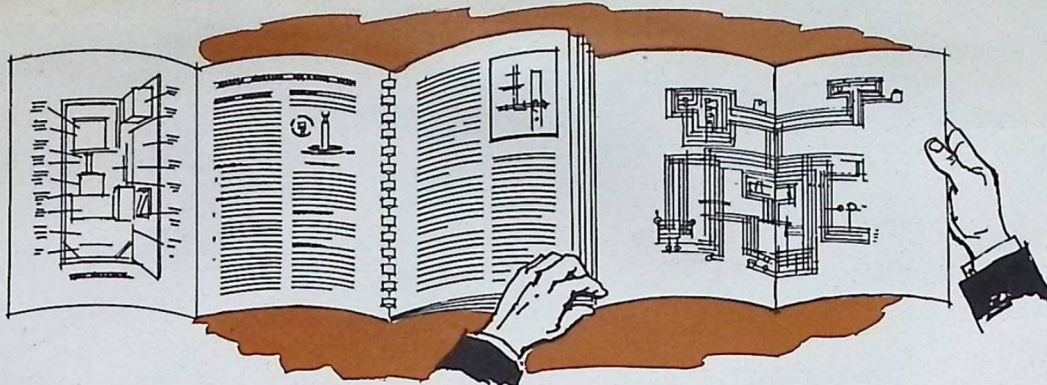
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PHOTOME, Ltd. / Hersham Factory Estate,
Hersham
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How to use this book



This book has been prepared as a general guide for the installation, maintenance and operation of the Model 14 Auto-Photo Studio. Keep it available at all times for quick and ready reference. Familiarity with its pages will enable you to minimize service problems and costs, and at the same time assure you of maximum "Operation Dollars."

The first section of this book is devoted to

"setting up" the Studio to operate. It also presents an explanation of the machine's electrical, mechanical and photographic operations in working order sequence, and outlines procedures for general maintenance, and explains how to control photographic quality standards. Read this section thoroughly before starting installation.

The second section includes illustrations, parts listings and electrical wiring diagrams.

Always consult this book first for answers to operational and maintenance problems.

Model 14

FACTORY TESTED... All components used in the fabrication of AUTO-PHOTO mechanisms and sub-assemblies are thoroughly checked and tested prior to Studio assembly and each completed Studio is given a continuous 8 to 16-hour operation test before leaving our factory.

GUARANTEE POLICY . . . AUTO-PHOTO Studios are guaranteed for ninety days against defective materials and workmanship, excluding parts that may be damaged in transit. Any parts which may prove defective during the guarantee period may be returned to our factory, transportation charges prepaid.

Parts returned, under warranty, will be replaced and/or repaired at no charge to the customer, and returned transportation charges collect.

This guarantee is expressly limited to the extent stated above.

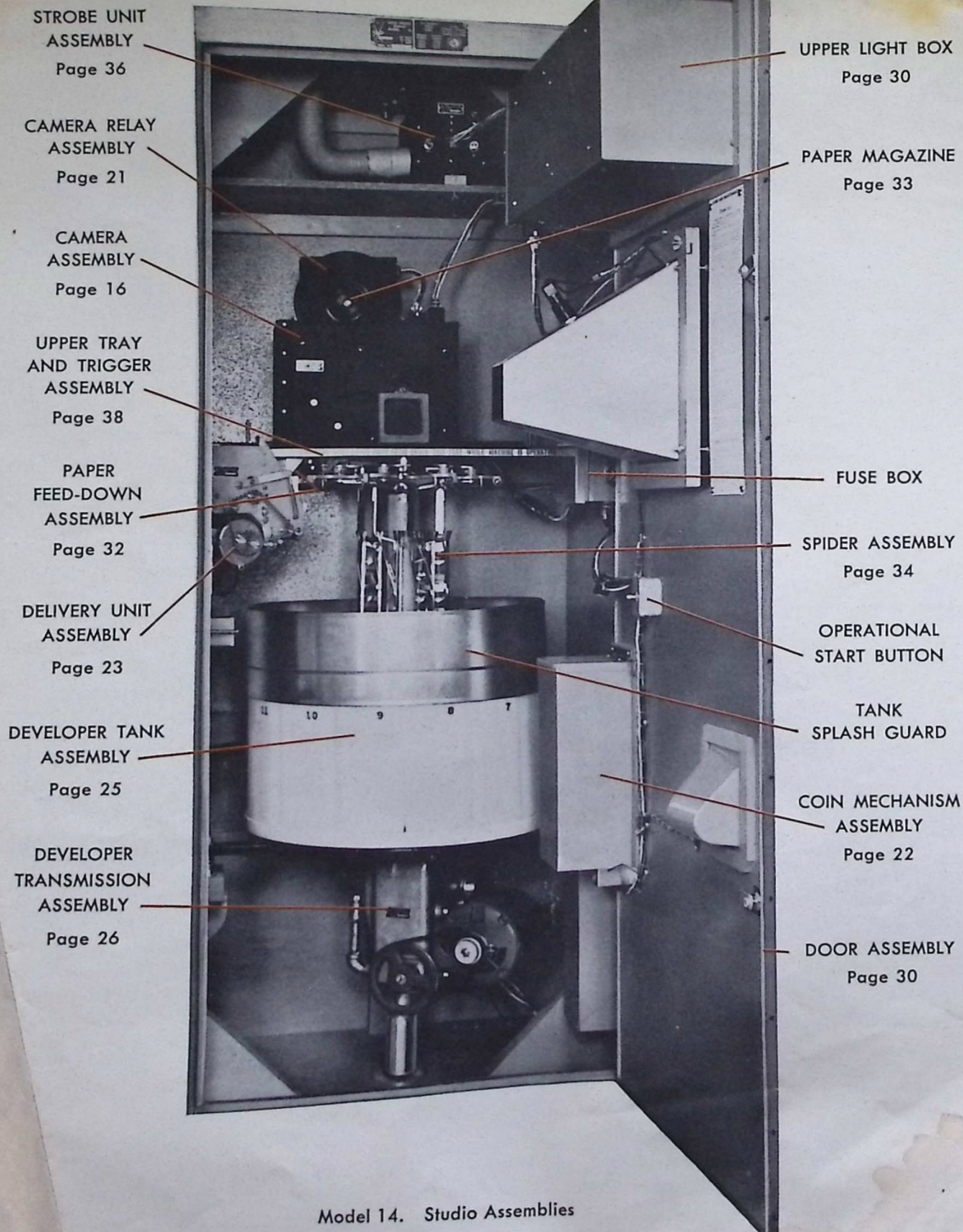
EXCHANGE POLICY ON ASSEMBLIES

...The Model 14 AUTO-PHOTO Studio is designed for quick, easy servicing and repair. Mechanisms are grouped into assemblies to provide maximum accessibility for easy installation and removal.

The following Model 14 exchange assemblies are available on a moment's notice. Customer pays only for transportation, replacement parts if required and labor repair charges on the assemblies returned.

Assemblies available for exchange:

- Camera Assembly
- Camera Relay Assembly
- Delivery Assembly
- Developer Transmission Assembly
- Paper Feed-Down Assembly
- Spider Assembly
- Strobe Assembly
- Trigger Assembly



Getting the Studio ready to operate

Although all Studios are thoroughly tested and adjusted before leaving our factory, it is quite possible that readjustment of various components may be required when making installation because of rough handling during transportation.

ALIGNING DEVELOPER TRANSMISSION ASSEMBLY... The Developer Transmission Assembly is properly aligned at the factory. However, because of variance in location floor levels it is necessary to check the alignment when "setting up" the Studio and each time it is re-located.

The point of alignment is where the spherical nut on the transmission shaft meets the ball guide bushing. The ball guide bushing is mounted to the under side of the Upper Tray Assembly (see figure 1). When properly aligned the spherical nut at the top of the transmission shaft enters and releases freely from the ball guide bushing when in all indexing positions.

To check alignment:

1. Making sure that the electrical power source to the Studio is disconnected, turn transmission pulley counterclockwise by hand, until the transmission shaft comes to rest at its lowest position.
2. Remove spherical nut on transmission shaft by turning clockwise. Lift off Spider Assembly. Set Spider Assembly aside, upside down, to prevent bending of paper carriers.
3. Remove tank splash guard, chemical and water tanks, and set aside.
4. Place transmission alignment gauge (furnished with Studio) over end of transmission shaft with arrow on gauge pointing up. Run transmission shaft to its uppermost position by turning transmission pulley, counterclockwise, by hand, so that the alignment gauge meets the ball guide bushing on the under side of the Upper Tray.

NOTE: When shaft is at its maximum operating height, the inner sleeve of the gauge will telescope into the outer sleeve.

5. Realignment is required:

a. If the outer sleeve of the gauge does not center on the black line of the inner sleeve when the gauge is compressed.

b. If the outside diameter of the outer sleeve of the alignment gauge does not conform with the outside diameter of the ball guide bushing.

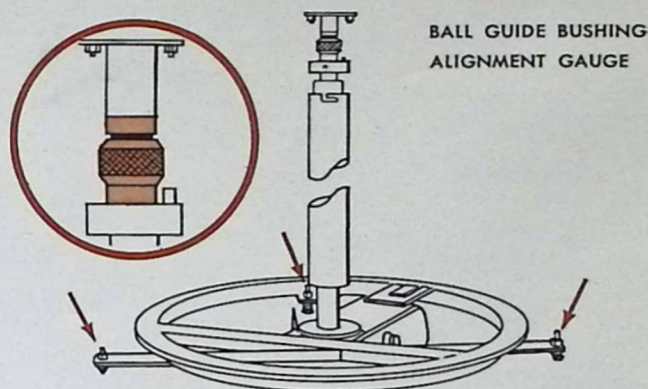


Figure 1. Transmission Alignment

If realignment is required:

1. To center the outer sleeve of the gauge on the black line of inner sleeve (height check), raise or lower Developer Transmission Assembly by loosening or tightening the three spring-loaded hex nuts located on each side and at the rear of the transmission mounting ring.
2. To align outside diameters of outer sleeve of gauge and ball guide bushing to each other (level check), tighten or loosen hex nuts as required.
3. The Developer Transmission Assembly is accurately aligned when, with its shaft at maximum operating height, the outer sleeve of the gauge is centered on the black line of the inner sleeve, and the diameter of the outer sleeve of the gauge conforms with that of the ball guide bushing.

NOTE: When rim of the outer sleeve of the gauge is centered on black line of the inner sleeve, the clearance between the under side surface of the upper tray and the top of a turn-out cam on the Spider Assembly, when installed, should measure one and one-fourth inches.

Remove alignment gauge, and replace Spider Assembly and spherical nut. Make certain the positioning pin on the top of the transmission shaft collar fits into slot on the Spider Assembly casting.

MOUNTING CAMERA RELAY ASSEMBLY... To install, rotate Camera Assembly on upper shelf to extreme right position. Do not lift camera off its securing pin. The Camera Relay Assembly mounts on top of the camera and is secured with two screws furnished for this purpose. Fix Jones plug of Camera Relay Assembly into receptacle located directly in line with the Relay Assembly on top of camera.

Installing paper magazine

1. Remove tape from paper feed slot of loaded magazine.
2. With camera in outward position on shelf place magazine in opening on top of camera housing.
3. Open camera door and disengage gears that drive paper feed rollers by pushing clutch to the left (see figure 2).
4. Guide leading edge of paper from magazine into the slot of the lens housing backing plate and between the rubber rollers. Rotate outer roller by hand until paper strip protrudes below base of camera.

NOTE: Cut protruding end of paper at approximately 60 degree angle to assist threading paper through the camera.

5. Move clutch to right to re-engage gears.
6. Cut that portion of paper extending below camera base by pushing solenoid plunger which

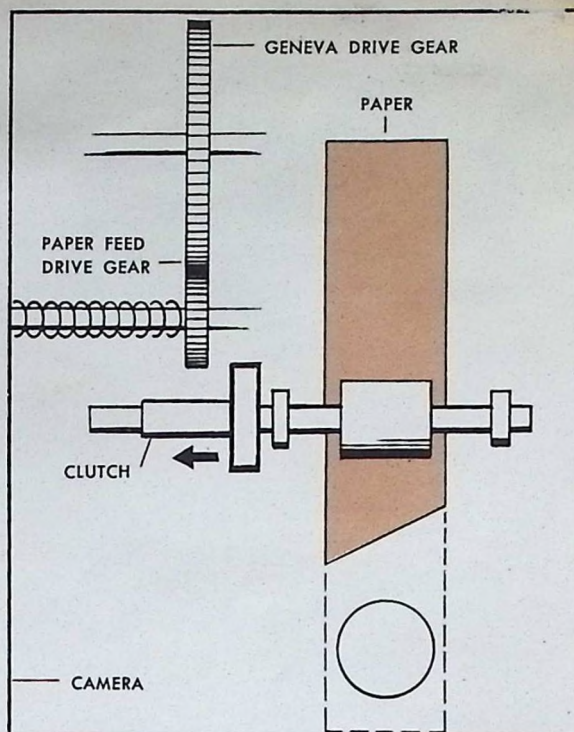


Figure 2. Paper Feed-Down Clutch

operates paper cut-off knife.

7. Close camera door and rotate camera to operating position on shelf which is as far back to the left as it will go.

Dry run test

To insure functional operation of Studio before adding chemicals a "Dry Run" Test must be made.

1. Check power switch: The toggle switch, mounted at the bottom of fuse box on right hand side of cabinet interior, cuts off all power to Studio except the convenience receptacle located next to the switch.

a. Switch is "off" when depressed to left. With switch "off" check to insure that fuse (fusestat) is securely seated in fuse socket.

b. Close fuse box door and turn switch right to "on."

2. Check and secure electrical plug connections from:

- a. Camera relay to camera.
- b. Main harness to camera.

c. Main harness to Trigger Assembly.

d. Main harness to upper light box on cabinet door.

e. Main harness to studio door.

f. Main harness to Strobe assembly.

3. Check "Hi-Lo" switch on Strobe Assembly: Make certain switch is set on "Lo" for dry test run.

NOTE: When the Strobe Assembly has been out of use two weeks or more the condensers require time to build up a proper charge. To minimize fuse blowing when Strobe Assembly is put back in service, place switch on "Lo" for one hour and process, with studio door closed, 15 to 25 photo strips before Studio is put in use. Thereafter, leave switch on "Hi" to provide full illumination of strobe lamps.

4. Check Studio service cord: The Studio service cord is secured into the electrical wall outlet. Note that the service cord is equipped with a three-way plug. Should location not have a mating receptacle, do not remove ground blade on plug. Either install like receptacle or attach three-way grounded plug to service cord that will mate with grounded receptacle.

UNDER NO CIRCUMSTANCES OPERATE STUDIO WITHOUT A GROUND CONNECTION

5. Check alignment of paper carriers: This check is made using the paper carrier alignment gauge located on the inside left wall of the dark room compartment. Each paper carrier should be checked when positioned directly in front of door opening and when in its uppermost position. To position a carrier for check, press operating switch button on inside of panel door. As carrier comes into check position, stop cycle with power switch mounted on under side of fuse box.

a. Before starting cycle of operation, drop transmission outer shaft guard to expose shaft. This is accomplished by loosening spherical nut on top of transmission shaft and raising Spider Assembly enough to permit the turning and releasing of guard from mounting set screws.

b. With transmission outer shaft guard lowered and a paper carrier directly in front of you, at its uppermost position, place large "V" notch of gauge firmly against transmission shaft (not shaft tube housing) and, holding "V" notch against shaft, rotate other end of gauge toward you until the small "V" notch comes to rest against the vertical edge of the paper carrier (see figure 3).

c. Carrier is in alignment if "V" edge conforms with "V" notch in gauge. If edge of carrier and "V" notch do not conform, gently pull or push carrier to bend as required for proper alignment.

d. Following alignment check on all seven carriers, replace outer shaft guard on set screws and twist to lock. Tighten spherical nut on transmission shaft, making sure the positioning pin on the top of the transmission shaft collar fits into the slot on the spider assembly casting.

6. Check feeding of paper strips into paper carriers:

a. Operate Studio with door open.

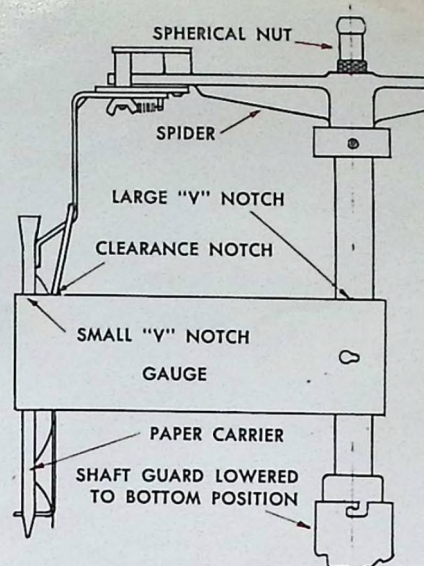


Figure 3. Paper Carrier Alignment Gauge

b. Press operating start button on inside of door panel once for each strip of photos. To insure consecutive feeding of paper strips into all seven paper carriers, push button immediately following delivery of a strip to each carrier.

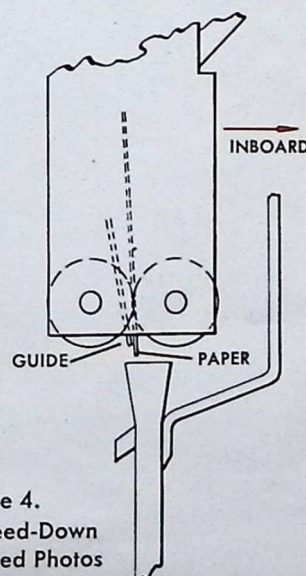


Figure 4.
Paper Feed-Down
for Exposed Photos

c. Should paper strips not feed properly into paper carriers, re-alignment of carriers to Feed-Down Assembly may be necessary. However, before making any adjustment, make certain that the Spider Assembly is positioned correctly on the transmission shaft. The positioning pin on top of the transmission shaft collar must fit into the slot on the spider assembly casting (see figure 4).

(1) Paper strips should feed into the "outboard" side of the paper carrier openings, clearing the flanged lips of each carrier. Should paper strips hit one edge of flanged lips a lateral adjustment is required. To adjust for proper clearance, loosen lock nut #259 and adjust screw #636 on Spider Assembly (see page 35).

(2) "Inboard" or "outboard" adjustment is made by bending chute guide of Feed-Down Assembly in or out as required for clearance (see figure 5).

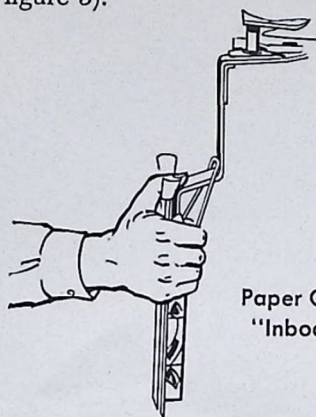


Figure 5.
Paper Carrier Adjustment for
"Inboard" or "Outboard"
Alignment

d. To re-check alignment of paper carriers with Feed-Down Assembly.

(1) Rotate Camera Assembly counter-clockwise to outward position to gain access to feed-down slot in upper tray.

(2) Insert dry photo paper strip through feed-down slot.

(3) Turn large gear in Feed-Down Assembly counter-clockwise by hand. This will move paper strip down through feed-down rollers into paper carrier. Spider Assembly must be in its uppermost position with the carrier being checked directly under Feed-Down Assembly.

7. Check operation of Delivery Assembly: If Delivery Assembly fails to pick up paper strip from carriers, check:

a. Relative position of switch arm #2029 on Delivery Assembly with paper carrier support arms to make sure that switch is being activated when carrier support arm makes contact with switch arm. (see page 23, figure 16).

b. Relative position of the delivery assembly pickup rollers to the top of the paper strip while carrier is directly under Delivery Assembly; Paper strip in paper carrier should first contact the "inboard" roller of delivery unit about one-eighth inch inboard from point of where the

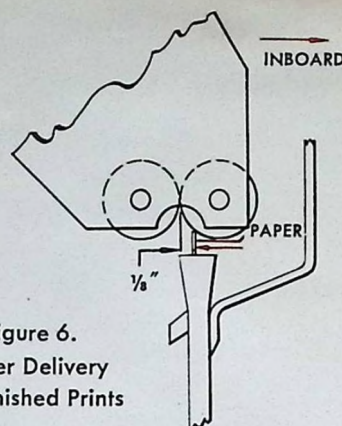


Figure 6.
Paper Delivery
for Finished Prints

two rollers meet (see figure 6). Should adjustment be required, loosen bolts holding Delivery Assembly to upper tray and move Assembly inboard or outboard to proper position.

8. Check operation of Coin Mechanism Assembly: (Note: Before making adjustments be certain slug rejector is level and clean and magnet is free of metal particles. See page 22, figure 15.)

a. Insert coin in coin slot to observe operation of Mechanism Assembly.

b. If quarters repeatedly drop through the 25-cent undersize cradle, the cradle arms may be distorted. Remove the cradle and using needle-nose pliers bend the arms slightly closer together. Take care not to distort the 25-cent undersize cradle or it may bind on the plate when reinstalled. See that the clearance between the arms and the main plate is not increased. Excess clearance will cause thin quarters to by-pass the cradle and drop through to the reject outlet. Adjustment of the cradle will seldom, if ever, be necessary.

c. If quarter-size slugs are being accepted, loosen the separator screw and move the separator slightly inward—then tighten screw. If the separator is in too far, quarters will be rejected.

d. If quarters are repeatedly rejected after leaving the rail they may be striking the deflector. To correct, move deflector inward slightly.

9. Check operation of strobe lamps, red warning light and green instruction lights:

NOTE: This check must be made with the Studio door closed. The safety switch is actuated by the opening and closing of the Studio door. The switch activates the two-contact-point relay located in the Strobe Assembly. When the door

is opened one point closes and unloads the voltage from the strobe capacitors. The other point opens cutting off the power source to the Strobe Assembly. The safety switch also, when the door is open, cuts the electrical contact to heater and thermostat units in the developer tank.

- a. Insert coin in coin slot.
- b. Immediately following acceptance of coin in coin slot the red warning light in panel door view window will turn on for approximately one second.
- c. When the red light turns off, the upper and lower strobe lamps will flash simultane-

ously, four times, at approximately five-second intervals.

d. Immediately following the second strobe flash, the green lights, located on the outside of Studio door and at delivery chute on side of Studio will turn off.

e. When green lights are off the coin mechanism will reject all coins.

f. The green lights will turn on approximately 10 to 30 seconds following the fourth strobe flash.

g. To insure proper operation, this test cycle should be repeated three or four times using a coin.

Checking of electrical sections

STROBE LAMPS... The Strobe Assembly is shipped installed in the Studio ready to operate. It is located on the top shelf in the darkroom compartment and is secured with a wooden holding block, bolt and wing nut.

1. If one or more of the strobe lamps fails to flash with each exposure:

a. Check to make certain the Jones plug (multi-bladed plug) from the main harness is firmly fixed into the Strobe Assembly and the wire locking clip is pulled up and over the plug.

b. Check each strobe lamp making sure it is properly secured into its respective socket. Access to strobe lamps in upper light compartment is accomplished by removing holding screws in right-hand wood mounting strip securing light box compartment cover and sliding cover to right. The strobe lamp in the lower light compartment on the Studio door may be reached by removing the two mounting screws which hold the compartment cover in place.

NOTE: When the temperature in the Strobe Assembly exceeds 95° the fan motor thermostat

closes and starts the fan motor which circulates air to prevent over-heating.

TOP SIGN... Following installation of Studio top sign as directed in the Assembly Instructions enclosed with each Studio, run sign wiring through holes, aligned one above the other, in Studio top and dark room section of cabinet ceiling. Connect sign wires to main harness as per "Tag" instructions.

OUT-OF-PAPER WARNING LIGHT AND SWITCH

...A set of wires is provided for the optional installation of an out-of-paper warning light. This light is mounted on top of the Studio and turns on when the paper magazine is empty.

The out-of-paper switch is mounted in the camera directly above the feed-down rollers. When the paper magazine is out of paper, one side of the switch opens and:

1. Turns on "out-of-paper" light.
2. Turns off the green warning lights.
3. De-energizes "coin reject" solenoid causing the mechanism to reject any coins inserted through coin slot.

Final adjustments

INSTALL CHEMICAL TANKS

1. Remove Spider Assembly and set aside, upside down; to prevent damage to paper carriers.
2. Thoroughly rinse all tanks in warm water before installing in Studio.
3. Insert developer heater element into lower

tank well and developer heater thermostat into upper tank well of tank #1. Place tank #1 on tray as shown in figure 7. Connect heater element and thermostat plugs to receptacle located on left interior wall of Studio. (NOTE: When the

DELIVERY UNIT ASSEMBLY
PAPER FEED-DOWN
ASSEMBLY

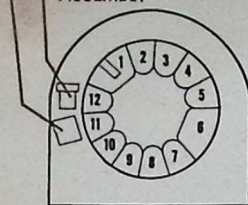
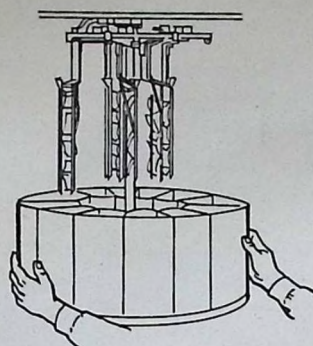


Figure 7.
Tank Alignment



temperature of the solution in tank #1 drops below 86° the thermostat closes and turns on heater element. When the solution temperature reaches 88° the thermostat opens and shuts off the heater). When Studio door is open, safety switch turns off heater and thermostat.

4. Install remaining tanks in numerical order as shown in figure 7.

PREPARING PROCESSING SOLUTIONS

1. Pour developer concentrate from Chemical Kit into tank #1 and add water to within one-half inch of top. Stir gently to mix.
2. Pour bleach concentrate from Chemical Kit into tank #4 and add water to within one-half inch of top. Stir gently.
3. Fill tanks #6 (two tanks) half full of water and empty into each one-half of the crystals

from the plastic bag (clearing concentrate) contained in the Chemical Kit. Mixing one tank at a time, stir vigorously while adding water, until all crystals are in solution. Solution level, when mixed, should be one-half inch from top of tanks.

4. Empty toner concentrate from bottle in Chemical Kit into tank #9. Fill with water to within one-half inch of top and stir gently.

5. Install splash guard. The formed ridge rests on the outside circumference of the tanks with the widest section of band extending above the tanks. It may be necessary to compress tanks toward center if the band does not readily seat.

6. Replace Spider Assembly making certain the positioning pin on top of the transmission shaft collar fits into slot on the spider assembly casting.

7. Fill tank #'s 2, 3, 5, 7, 8, 10, 11 and 12 to within one-half inch of top with clear water.

8. Check to make sure tanks are properly positioned on tray (see figure 7) and that they are aligned to assure full clearance of their edges and sides when paper carriers are immersed in solutions during the development cycle. When tanks are properly aligned, a carrier in its "out" and "up" position will be centered over the tank directly beneath it. Should tanks be off center to carriers, adjust by moving tray either to right or left, as required.

Make a Studio operation test run

Set strobe switch to "Hi" position and close Studio door. Allow approximately $\frac{3}{4}$ to 1 hour for strobe condensers to properly charge and developer solution to heat to desired 86° before making the test.

It is suggested that several photostrips be taken, using coins, to insure quality of photography meeting acceptable standards.

Electrical • mechanical operational sequence

See Electrical Schematic and Wiring Diagrams

1. Customer's coin momentarily closes coin switch at bottom of Coin Mechanism Assembly which closes and "locks in" camera relay contact points (Set No. 1) located in Camera Relay Assembly. This supplies initial source of power to camera motor.
2. Camera motor turns the geneva driver clockwise (see page 16, figure 8).

3. The instruction light cam on the geneva driver shaft momentarily closes the instruction light switch as the shaft starts to rotate. This turns on the red warning light in view window prior to each exposure.

4. The geneva driver during one complete revolution activates two geneva drive gears in succession.

a. The first geneva drive gear turns the shutter drive shaft which opens the camera shutter for the first exposure. The strobe light cam on the shutter drive shaft operates the strobe light switch which fires the strobe lamps.

b. The second geneva drive gear turns the paper drive shaft which feeds down the paper strip for the second exposure and closes camera stop switch operated from "V" cam on paper drive shaft, described in section '6', which in turn supplies second source of power to camera motor.

5. Cycle repeats for the second exposure.

6. A double disc cam is mounted on the geneva gear shaft. The "V" notched disc is the camera stop switch cam and the "flat" notched disc is the developer start cam. As the geneva gear driver comes in contact with the second geneva drive gear for the second time, the developer start cam ("flat" disc) rotates with the following results:

a. Momentarily closes the developer start switch which activates through a coil the three sets of electrical contact points (Sets No. 2, 3 and 4) of the developer relay located in the Camera Relay Assembly.

(1) One set of points (Set No. 2) opens and cuts off the source of power to the coin switch, green warning lights, manual start switch and coin reject solenoid.

(2) One set of points (Set No. 3) closes and supplies power to transmission motor.

(3) One set of points (Set No. 4) closes and supplies power to the trigger solenoid in the Trigger Assembly.

b. Opens camera relay contact points (Set No. 1) and cuts off initial source of power to camera motor.

7. The geneva driver continues its rotation for the third and fourth exposures. As the fourth frame is fed into the Feed-Down Assembly, the camera stop switch cam has completed one cycle and opens the camera stop switch stopping the camera motor. At this point the exposed strip of paper is in the Feed-Down Assembly waiting to be fed into a paper carrier.

8. During the second exposure cycle the transmission motor was started and the Trigger Assembly was activated causing a paper carrier to move to the "out" position. The paper carrier

was then rinsed in tank #12.

9. Before the paper carrier moves to its "out" position, the Spider Assembly lowers allowing the transmission motor switch, located on the Trigger Assembly, to close. This supplies a second source of power to the transmission motor.

10. As the paper carrier travels to the top of its stroke and positions under the Feed-Down Assembly it closes cut-off switch mounted on under-side of upper tray which:

a. Cuts off the exposed paper inside the camera.

b. Starts the feed-down motor.

c. Advances the meter counter recording sale.

d. Activates the three electrical contact points (Sets No. 2, 3 and 4) in the developer relay in the Camera Relay Assembly:

(1) One set (No. 2 set) closes and supplies power to the coin switch, green warning lights, manual start switch and coin reject solenoid making the Studio ready to receive another coin.

(2) One set of points (Set No. 3) opens and cuts off first source of power to transmission motor.

(3) One set of points (Set No. 4) opens and cuts off power to trigger solenoid.

11. Developer Transmission Assembly continues to operate in cycle, dipping and agitating the exposed strip of paper into each one of the 13 tanks.

12. As the paper carrier reaches the top of its stroke over tank #11, it closes the delivery unit switch, located on the side of the delivery unit, which starts the delivery unit motor. The delivery unit removes the completed strip of photographs from the paper carrier and delivers strip into delivery chute on outside of Studio, for customer pick-up.

13. The transmission continues to operate until the Trigger Assembly rotates the carrier back to the "in" position causing the control disc to open the transmission motor switch on Trigger Assembly and stop the transmission motor.

14. The cycle may be repeated, any time after the green warning lights on door and outside of cabinet turn on, by inserting another coin. At any one time, each of the seven paper carriers can be processing a different strip of photos in the cycle.

Photographic cycle of operation and Auto-Photo process

The photographic process utilized by the Model 14 Auto-Photo Studio produces a positive photo image on specially formulated "direct positive" waterproofed photographic paper.

The emulsion side of the paper is exposed to the image projected thereon through a right angle optical glass prism which produces a "true image." Direct positive cameras, not using a prism, produce a "mirror image," which is reversed left for right. This is the way a person sees himself in a mirror. The Auto-Photo camera produces a "true image"—left hand side at left and right hand side at the right. This is the way others see us.

Following the exposure cycle and the feeding of the paper into the paper carrier, the exposed strip is immersed and agitated for 30 seconds in a developer chemical solution (tank #1). The developer solution reduces to metallic silver the areas of the emulsion-coated paper that have been exposed to light, thereby producing a negative image.

The developer solution is rinsed off in tanks #2 and #3 for 30 seconds.

The metallic silver image forming the negative

is dissolved and removed by the bleach solution in tank #4. The remaining unexposed and undeveloped emulsion will form the positive image and is not removed by the bleach solution. (Bleaching time 15 seconds).

Strip is rinsed in water in tank #5 for 15 seconds.

The bleach solution remaining on the emulsion (acid) is neutralized by the clearing solution in tanks #6 (two). Clearing solution also removes the orange stain which has clung to the remaining emulsion. (Clearing time 30 seconds).

The clearing solution is rinsed off for 30 seconds in tanks #7 and #8 containing water.

The exposed latent positive image is developed into a metallic silver positive by being processed in the toner solution in tank #9 for 15 seconds.

The toner solution is washed off in tanks #10 and #11 for 30 seconds.

As the paper carrier reaches the top of its stroke over tank #11, the completed strip of photographs is removed from the carrier by the Delivery Assembly and into the delivery chute on the outside of the cabinet.

Auto-Photo photographic paper and chemicals

AUTO-PHOTO direct positive photographic paper and chemicals are manufactured exclusively for use in AUTO-PHOTO Studio equipment. Both products are the result of careful and costly research. Rigid quality controls maintained at the factories is your assurance of paper and chemical compatibility and quality consistency. The photographic prints produced with AUTO-PHOTO "SPEEDREX" paper and chemicals are superior in every way.

AUTO-PHOTO "SPEEDREX" PHOTOGRAPHIC PAPER... A new and improved portrait quality, direct positive, high speed, double weight, waterproof paper, developed specifically for use in AUTO-PHOTO Studios. Prints produced with AUTO-PHOTO "SPEEDREX" have more contrast, greater range of tone values, sharper detail and more depth of field.

AUTO-PHOTO PHOTOGRAPHIC CHEMICALS...

AUTO-PHOTO Chemicals are packaged in 'Single Service' kits to save handling time and money in warehousing, transit and on location. A kit contains all chemicals required for one complete change. AUTO-PHOTO formulas are the result of years of experimentation and laboratory research. Although other chemicals are available for direct, positive development, *no other source has been able to duplicate the present AUTO-PHOTO formulas.* AUTO-PHOTO Chemicals not only consistently produce superior prints, but have a much longer shelf and operating life.

CHEMICAL KITS (PL-11 Liquid Pack)... To meet the varying needs of Studio operators, chemicals for

use in the Model 14 Studio are available in either liquid or dry type form. The PL-11 Kit contains liquid concentrates which require only the addition of water to make the required working solutions. Less time required to mix chemicals on location and a slightly more effective Toner concentrate than that available in dry form are the advantages offered in the PL-11 Kit.

(P-211 Dry Pack)

All chemicals making up P-211 Dry Pack Kit are in crystal or powder form. Each preparation is packed in an individual, air sealed polyethylene bag. All crystals and powders must be thoroughly mixed into working solutions on locations. Although more time-consuming to mix, the P-211 kits are preferred by some operators because they may be shipped by parcel post. Liquid kits are not mailable. They must be shipped by Railway Express, motor or rail freight.

Dry Pack Kits are ideal "cold weather" packs. All highly saturated liquid developer concentrates, as contained in the PL-11 Kit, will crystallize when exposed to temperatures of 40 degrees or less. It is essential that all of these crystals be thoroughly dissolved into a working solution to produce the desired results. This problem is eliminated with the use of the "all dry pack."

Testing chemical solutions and photographic paper

CHEMICAL SOLUTIONS . . . The purpose of these tests is to isolate chemicals which may be the cause of sub-standard quality photographs. Tests should be made only:

1. Following complete change of chemicals and the replenishing of remaining tanks with fresh water.
2. With temperature of developer solution at 84° to 88°.
3. With iris reading of f/5.6 to f/8.

Testing developer solution:

This test is made with the studio door open and by pressing the operation control button. As carrier leaves the developer tank (#1), emulsion side of paper should be a deep black. If grey or mottled, run several more test strips, and if condition does not improve, change solution.

CARE AND MAINTENANCE SUGGESTIONS

1. *Use only clean tanks*—Wash and rinse before each and every chemical change. Clean chemically (except #4) with used bleach solution every 60 days or oftener, if required. Clean #4 tank with cleaning solution.
2. Stir and mix chemicals only with a hard rubber, plastic or glass rod and rinse between mixing of solution.
3. To avoid possible contamination of one chemical by another, mix in operation sequence, i.e., developer, bleach, clearing and toner.
4. Keep paper carriers clean and free of chemical deposit. Contamination will produce inferior prints and shorten life of chemicals. The carriers on the Model 14 should be rinsed in hot water with each chemical change.
5. To insure the constant vending of quality prints, chemicals should be changed every 350 strips or once a week, whichever occurs first.
6. The developer temperature should be maintained between 84 and 86 degrees at all times. Wherever possible, it is best that the current to the Studio be left on 24 hours a day. Should it be necessary to disconnect the current at night, be sure to turn it on again at least one hour before the starting of the next day's business.

Testing bleach solution:

Bleaching action (tank #4) should remove all traces of black on emulsion side of paper. If it fails to do this after observing two or three strips in process, it has not been properly mixed, or is over diluted.

Testing clearing solution:

Clearing action (tanks numbered "6") should remove all traces of the orange bleach stain. If not, check to make sure that all crystals are in solution.

Testing toner solution:

The toner solution (tank #7) must be checked independent of the developing, bleaching and clearing solutions, by running a separate strip through the complete cycle with the cabinet door closed. Presuming that the developing, bleaching and clearing action has been satisfactory, the photo strip as

it enters tank #7 should be white. The toner action should bring out the latent image or unexposed portion (dark areas) in sharp contrast to the exposed portion (white areas). The blacker the blacks and the whiter the whites, and a full gradation of tones between these extremes, the better the print. Take particular note of the border frames around each print. If they are a deep black and the dark areas of the photograph do not sharply contrast with the white areas, re-check temperature of the developer solution to make sure that it is 86°.

QUALITY CHECK ON PHOTOGRAPHIC PAPER...

Should you have reason to question the quality of photographic paper being used, the following check should be made, first making sure the chemical solutions are fresh and effective.

Close off camera lens to light by taping black piece of paper over funnel opening inside of Studio door. Close door, making sure the paper is held in place by being wedged between opening of viewing funnel and rubber gasket on camera opening. Start machine by using coin and allow to make complete cycle.

The strip of photo paper should be completely black as it is delivered into the chute on the outside of the cabinet. Satisfactory paper may, while wet, show some indication of being slightly mottled. However, it should dry to a deep black. Light streaks across the paper are indicative that the paper has been pre-fogged (light struck) prior to or during, loading in magazine, and/or light may be leaking

into dark room area of the studio. Before changing roll of paper, run off several additional strips, for it is quite possible the pre-fogging may be confined only to the first four or five feet of the roll.

Over-all grey tones, especially in the borders of the strip, indicates paper may be overage or has been exposed to temperatures in excess of 75° for several days while in storage or transit.

CARE AND MAINTENANCE SUGGESTIONS

1. Store paper in cool, dry area. (Paper kept in temperatures of 90 degrees for 2 weeks is equal to 6 months' normal ageing when stored at 60 degrees.) Avoid carrying or placing loaded paper magazines in open light or sun.
2. Load paper in dark room only. A Wratten series #2 dark red safe light may be used at a distance of 8 feet.
3. When reloading, make certain red inspection window in magazine is secure and light tight. Reseal if loose, or replace if damaged. Also, be sure black Scotch tape covering window is tacky and long enough to properly seal between inspections.
4. Seal magazine cover and base joint with black Scotch electrical tape after loading with paper to prevent pre-exposure or "fog."
5. Keep interior of paper magazine clean and free of dust. Clean with lint-free cloth and cleaning solvent.

Quality photos and a clean Studio increase profits

The importance of vending top quality photos *at all times* cannot be overstressed. Good photos create good will and future patronage. Remember, pleased customers will be "telling and selling" for you.

Change chemicals as often as is necessary, and keep tanks and photo processing parts clean and free of chemical contamination to insure the vending of photos of which you can be proud. Don't be

penny-wise and pound-foolish. One poor quality photo in the hands of a dissatisfied customer can do immeasurable damage to your business.

Keep the exterior and inside of your Auto-Photo Studio clean and orderly, and replace soiled side and back drapes with clean sets as required. A clean and polished studio will invite business.

Always remember that your best possible advertisement is a good quality photograph.

Improving quality of photographs

CONDITION

SOLUTION

Prints Too Light

Overexposed

An iris opening of f/5.6 to f/8 will normally give best results. If prints are too light rotate iris adjusting ring towards higher number "f" reading. To gain access to adjusting ring rotate Camera Assembly counter-clockwise until left end of camera faces operator and open pivot door on camera housing.

Overdeveloped (Chemicals too hot)

Check temperature of developer solution. Check heater and thermostat elements. Refer to page 8.

Pre-exposed paper

Change paper and check magazine for light leaks. See testing photographic paper, page 12.

Prints Too Dark

Underexposed

An iris opening of f/5.6 to f/8 will normally give best results. If prints are too dark, rotate iris adjusting ring towards lower number "f" reading. To gain access to adjusting ring rotate Camera Assembly counter-clockwise until left end of camera faces operator and open pivot door on camera housing.

Underdeveloped (Chemicals too cold)

Check temperature of developer solution. Check heater and thermostat elements. Refer to page 8. To insure properly developed prints throughout each day, current to the Studio should be left on at all times. If it is necessary to disconnect the current at night, be sure to turn it on again at least one hour before the start of the day's business to insure proper heating of developer solution.

(Life of chemicals exhausted)

Change chemicals. Refer to page 9. (See testing chemical solutions, page 12.)

Poor Contrast

Over-age paper

Change paper roll. (See testing photographic paper, page 12.)

Foreign Images On Prints

Portion of photo masked out (Paper remnant in lens backing plate)

Remove paper remnant with fingers, or, if necessary, take off backing plate (part #1529).

Oil spots (Results of over or improper oiling)

1. Check for source of contamination. Remove free oil from surfaces of camera backing plate, cut-off blade, Feed-down and Delivery Assemblies, paper carriers, etc. Clean all rollers in camera, Feed-down and Delivery Assemblies with solvent.

2. When lubricating Studio remove tanks. Any oil deposited in tanks will transfer to photo strips while being processed.

Small black spots on prints
(Dust or foreign particles on film)

1. Thoroughly clean inside of paper magazine before loading.
2. Check velvet light seal (part #1018) on magazine and replace if worn or if pile is flaking off.
3. Remove paper dust with soft cloth or brush from inside of camera.
4. Clean all rollers in camera, Feed-down and Delivery Assemblies with solvent.
5. IMPORTANT — Keep inside of dark room compartment clean and free from dust and lint at all times.
6. Clean shutter opening and door funnel.
7. May be caused by dust particles floating on surface of developer solution. Remove by drawing a clean blotter or paper tissue over surface several times.

Blue streaks on prints
(Exhausted bleach)

Clean tanks and change chemicals. Check for cause of contamination. Refer to page 9.

Discoloration on prints
(Insufficient development at these spots)

This condition is due to the paper being in too close contact with the carrier at these spots. Condition can be overcome by re-aligning carrier with Feed-down Assembly (see page 7). Check to make sure carrier has not been bent or misshaped to cause inside surfaces to press against emulsion side of paper.

Dark section at bottom of last print on strip
(Developer in tank #1 below ½ inch of top)

Fill tank #1 to within one-half inch of top.

Light section at top of first print on strip
(Deposits in bottom of chemical tanks)

1. Empty and clean tanks.
2. Chemicals not being thoroughly mixed when put into tanks. Follow instructions on packages.

Image blurred:

1. Lens out of focus or out of alignment
2. Lens and prism fogged or extremely dirty
3. Glass on door smudged or dirty

Return camera to factory for repair.

Return camera to factory for repair.

Clean glass with damp cheese cloth.

Unsuitably photo background

1. Soiled or torn back drape
2. Dirt on white background (Paper carrier contaminated)

Replace with clean drape.

Thoroughly clean paper carrier.

Faulty Development

Over-age chemicals

Empty and clean all tanks. Refill tanks as outlined on page 9.

Image in reverse
(Chemicals not in proper tank sequence)

Check to see chemicals are in proper tanks.

Over-all "muddy" effect

Empty and clean tanks.

Prints overlapping on strip
(Loose or worn camera paper feed rollers)

If drive roller is loose on shaft, tighten set screw. If worn or out of round, replace (parts #1966 and #1967).

Camera assembly

REMOVAL

1. Disconnect electrical power to Studio by removing service cord plug from wall receptacle.
2. Disconnect main harness plug.
3. Rotate Camera Assembly to right lifting at same time to disengage Assembly from key-slot hold-down pin.

INSTALLATION

1. Hold Camera Assembly with left end facing operator and place key-slot over hold-down pin in center of upper tray.
2. Rotate Camera Assembly until it drops into place over hold-down pin.
3. Secure Jones plug from main harness into mating receptacle on outside of camera housing.
4. Rotate Camera Assembly to original position on shelf.
5. Connect electrical power to Studio.

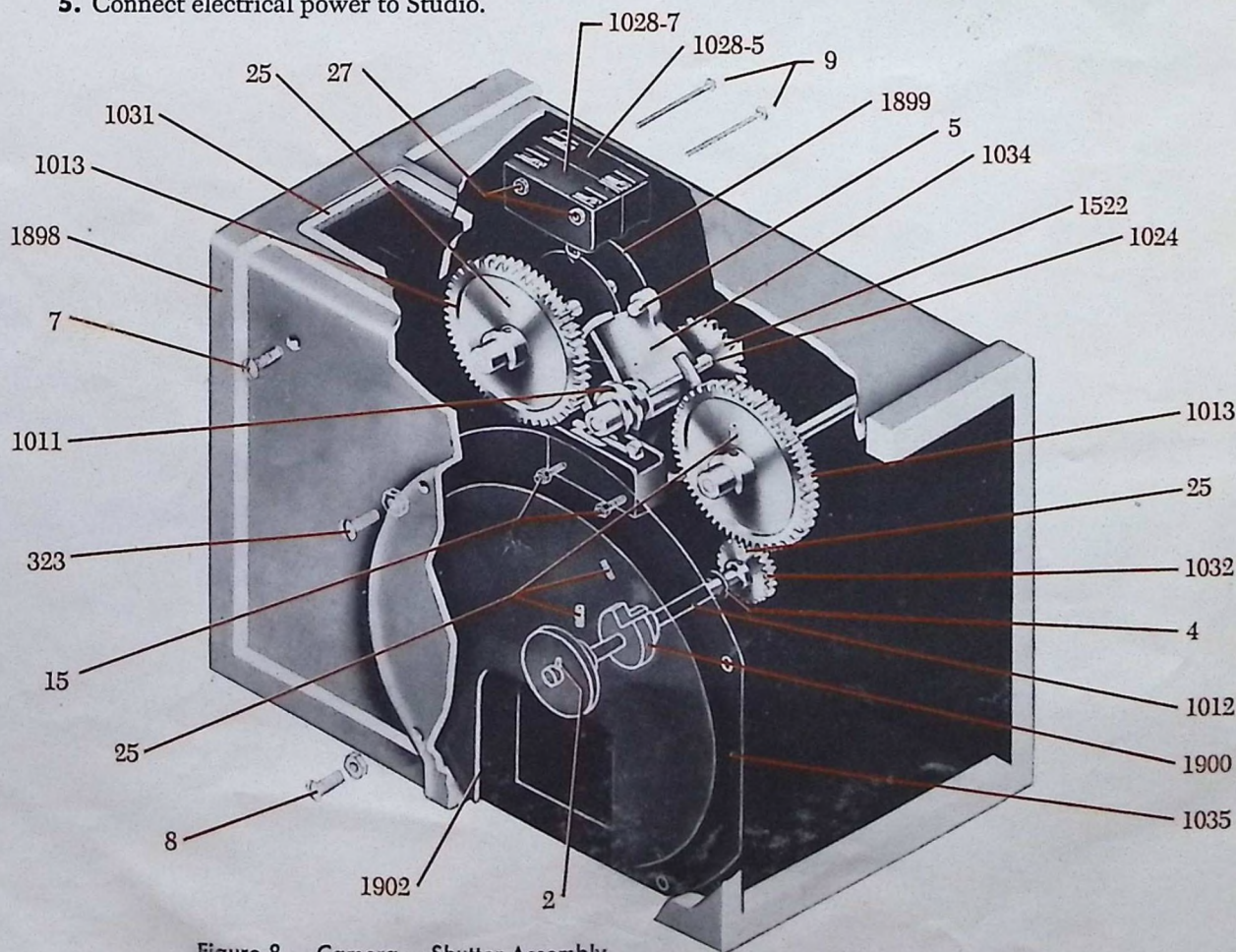
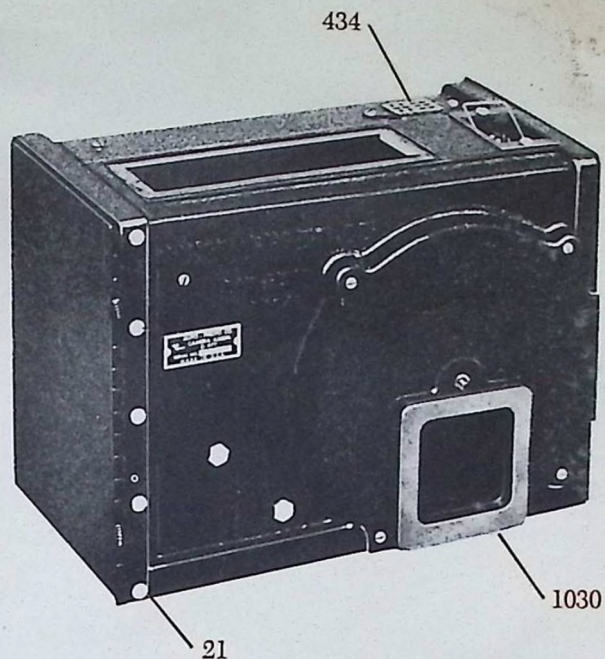
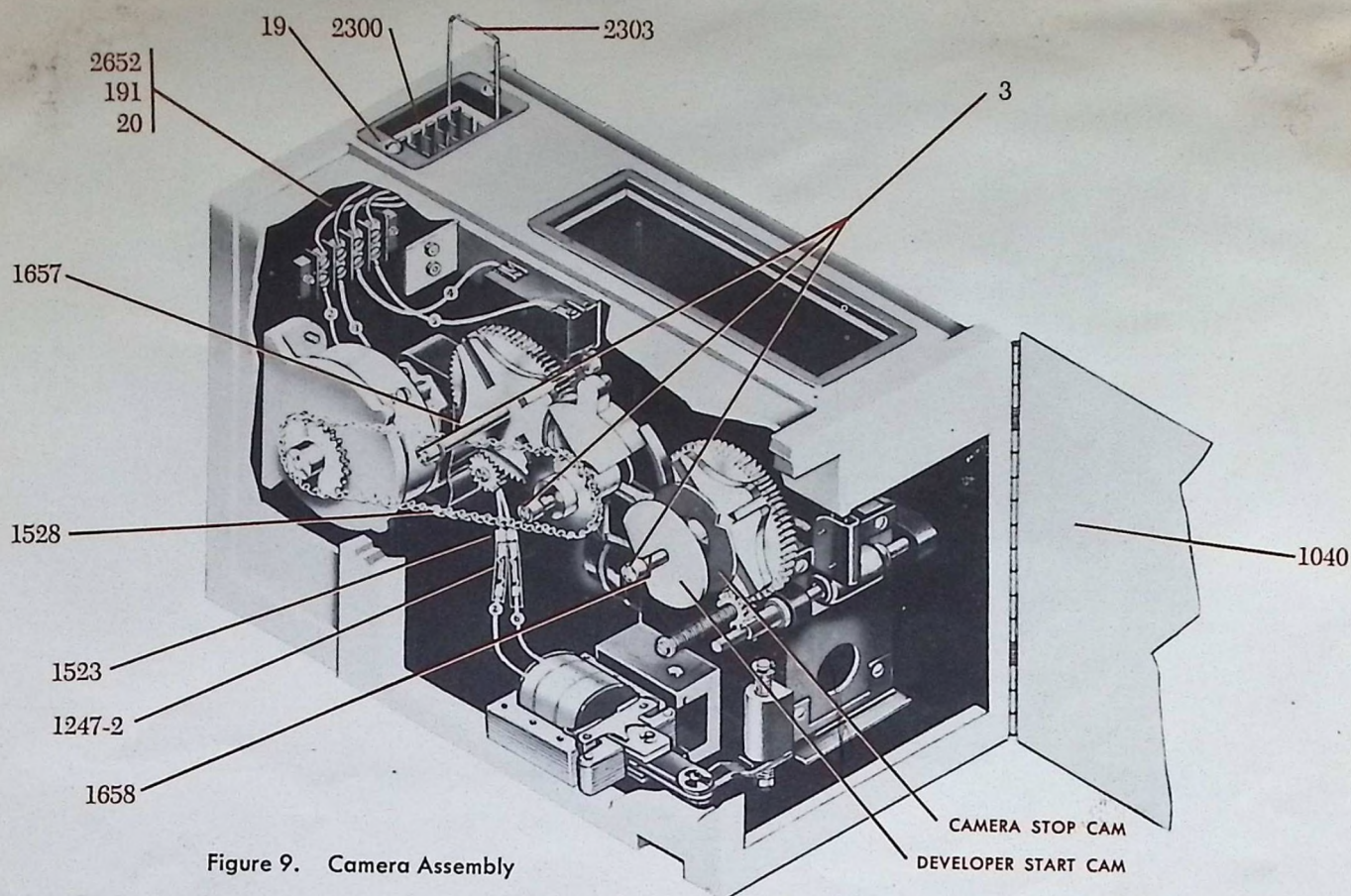


Figure 8. Camera — Shutter Assembly



CAMERA ASSEMBLY PARTS LIST

PART NO.	REQ'D	DESCRIPTION	PART NO.	REQ'D	DESCRIPTION
2	6	Woodruff Key	1030	1	Gasket, Funnel
3	10	Bearing	1031	1	Gasket, Paper Box
4	9	Snap Ring	1032	1	Gear Shutter Drive
5	1	Pin Dowel	1034	1	Driver, Geneva
7	3	Screw	1035	1	Plate Shutter Enclosure
8	5	Screw	1040	1	Door Assembly Service
9	2	Screw	1247-2	4	Sleeve, Insulating
15	2	Screw	1327	1	Plate, Motor Adjusting
19	2	Screw	1522	2	Sprocket
20	1	Screw	1523	2	Clip Sleeve Securing
21	5	Screw	1528	1	Chain, Geneva Drive
25	10	Set Screw	1657	1	Shaft, Geneva Gear Shutter Drive
27	13	Nut	1658	1	Shaft, Geneva Gear Paper Drive
191	3	Clamp, Plastic	1898	1	Housing, Camera
323	1	Screw	1899	1	Cam Assembly
434	1	Socket, Jones	1900	1	Cam
1011	1	Cam	1902	1	Shutter Assembly
1012	1	Shaft Shutter	2300	1	Plug, Lock
1013	2	Geneva Drive Gear	2652	1	Camera Harness Assembly
1024	1	Shaft, Geneva Drive	2303	1	Lock, Plug
1028-5	2	Micro Switch			
1028-7	1	Micro Switch			

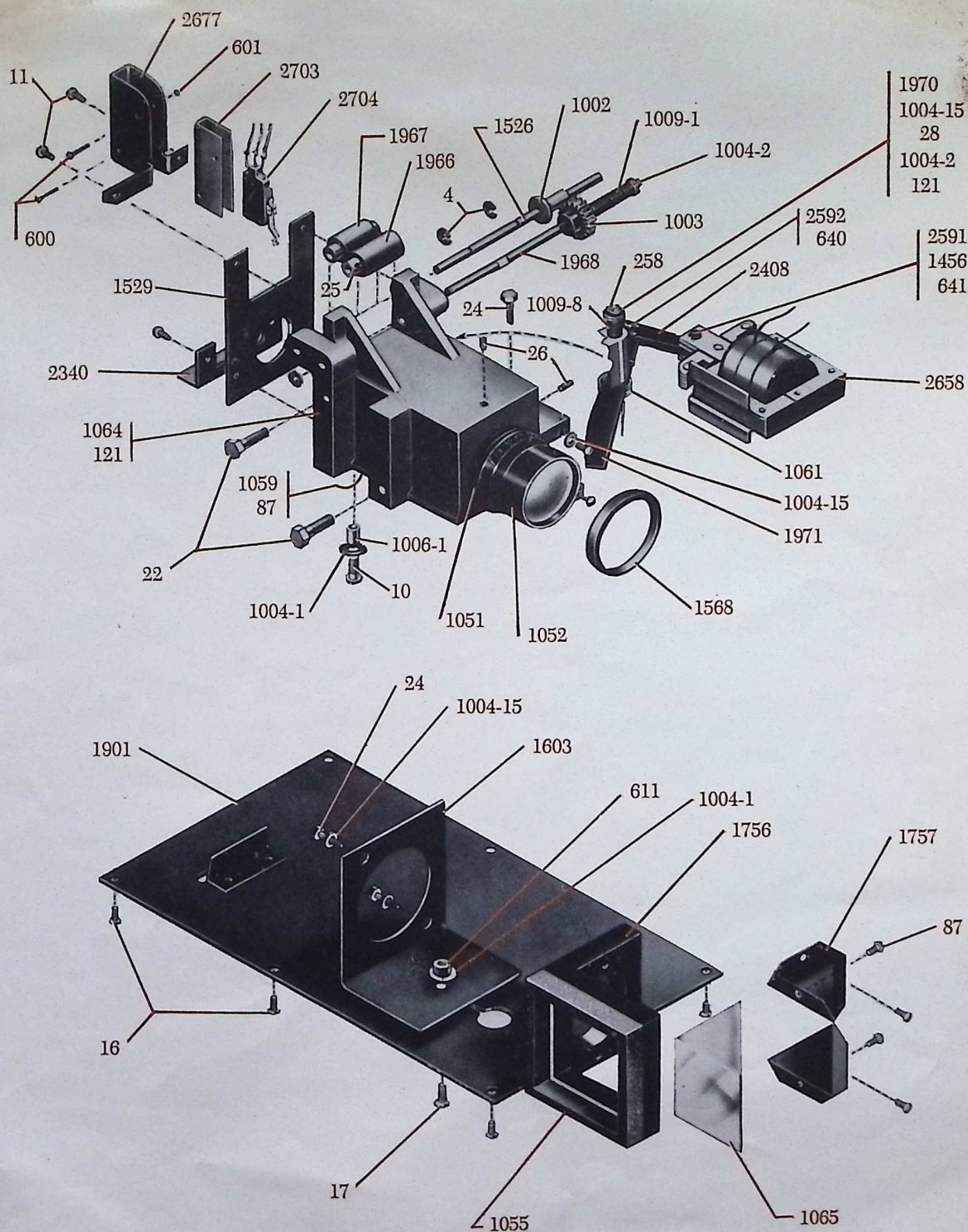


Figure 10. Camera — Exploded View

CAMERA EXPLODED VIEW

PART NO.	REQ'D	DESCRIPTION	PART NO.	REQ'D	DESCRIPTION
977	1	Camera Assembly	1051	1	Tube, Lens Adjusting
4	4	Snap Ring	1052	1	Lens Assembly
10	1	Screw	1055	1	Gasket Prism Mount
11	6	Screw	1059	1	Plate Bottom
16	7	Screw	1061	1	Spring Cutoff Blade Return
17	1	Screw	1064	1	Housing Lens
19	2	Screw	1065	1	Prism
21	5	Screw	1456	1	Oil Retainer
22	2	Screw	1526	1	Shaft Paper Feed Idler
24	3	Screw	1529	1	Plate Backing
25	1	Set Screw	1568	1	Washer
26	2	Set Screw	1603	1	Bracket, Prism Mount
28	1	Nut	1756	1	Mount, Prism
87	7	Screw	1757	1	Retainer, Prism
121	1	Bushing	1901	1	Plate Assembly - Bottom
258	1	Snap Ring	1966	1	Roller, Paper Feed
600	2	Screw	1967	1	Roller, Paper Feed Idler
601	2	Nut	1968	1	Shaft, Paper Feed Drive
611	1	Nut	1970	1	Shaft, Cutoff
640	2	Snap Ring	1971	1	Cutoff Blade
641	2	Snap Ring	2340	1	Bracket Backing Plate
1002	1	Throwout Paper Feed	2408	1	Link, Knife
1003	1	Gear Paper Feed Drive	2591	1	Pin, Solenoid Link
1004-1	2	Washer	2592	1	Pin, Knife Link
1004-2	5	Washer	2658	1	Solenoid Assembly
1004-15	10	Washer	2677	1	Bracket, Paper Switch
1006-1	1	Bushing Spacer	2703	1	Shield, Paper Switch
1009-1	1	Spring	2704	1	Switch, Paper
1009-8	1	Spring			

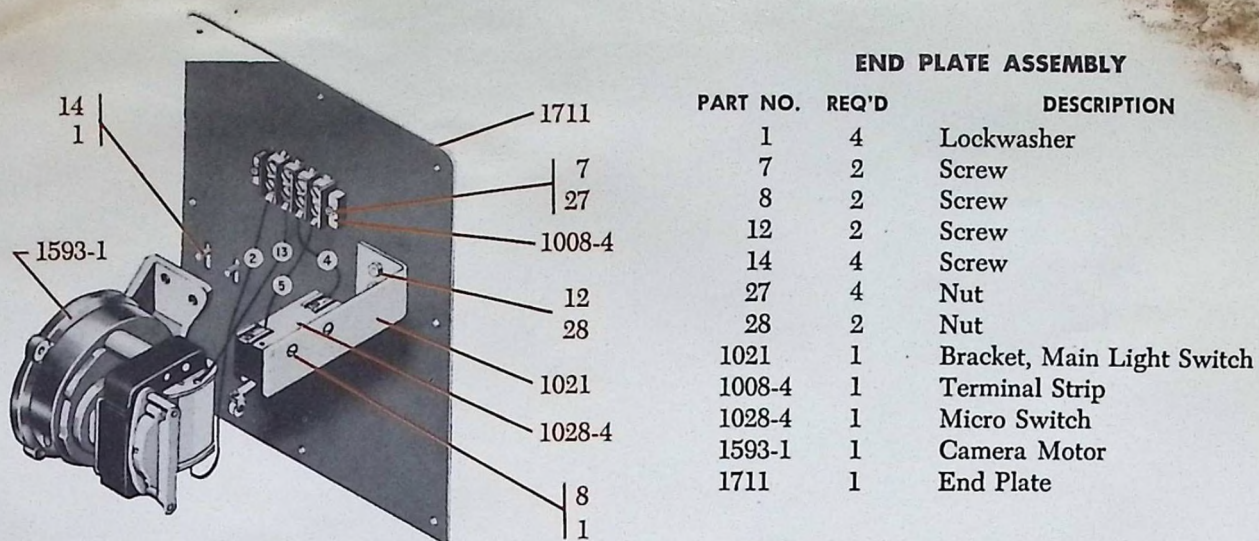


Figure 11. Camera — End Plate

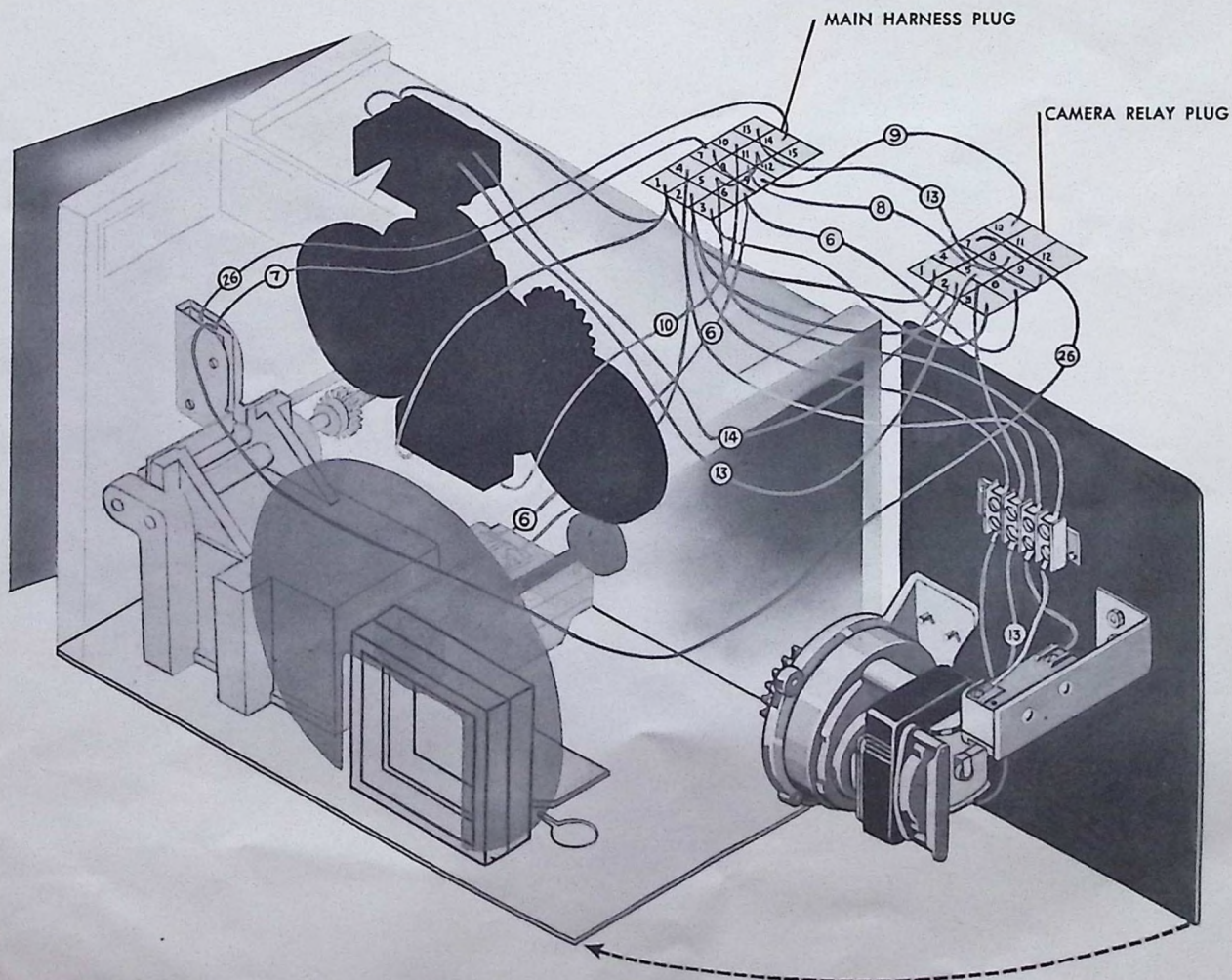


Figure 12. Camera — Phantom View

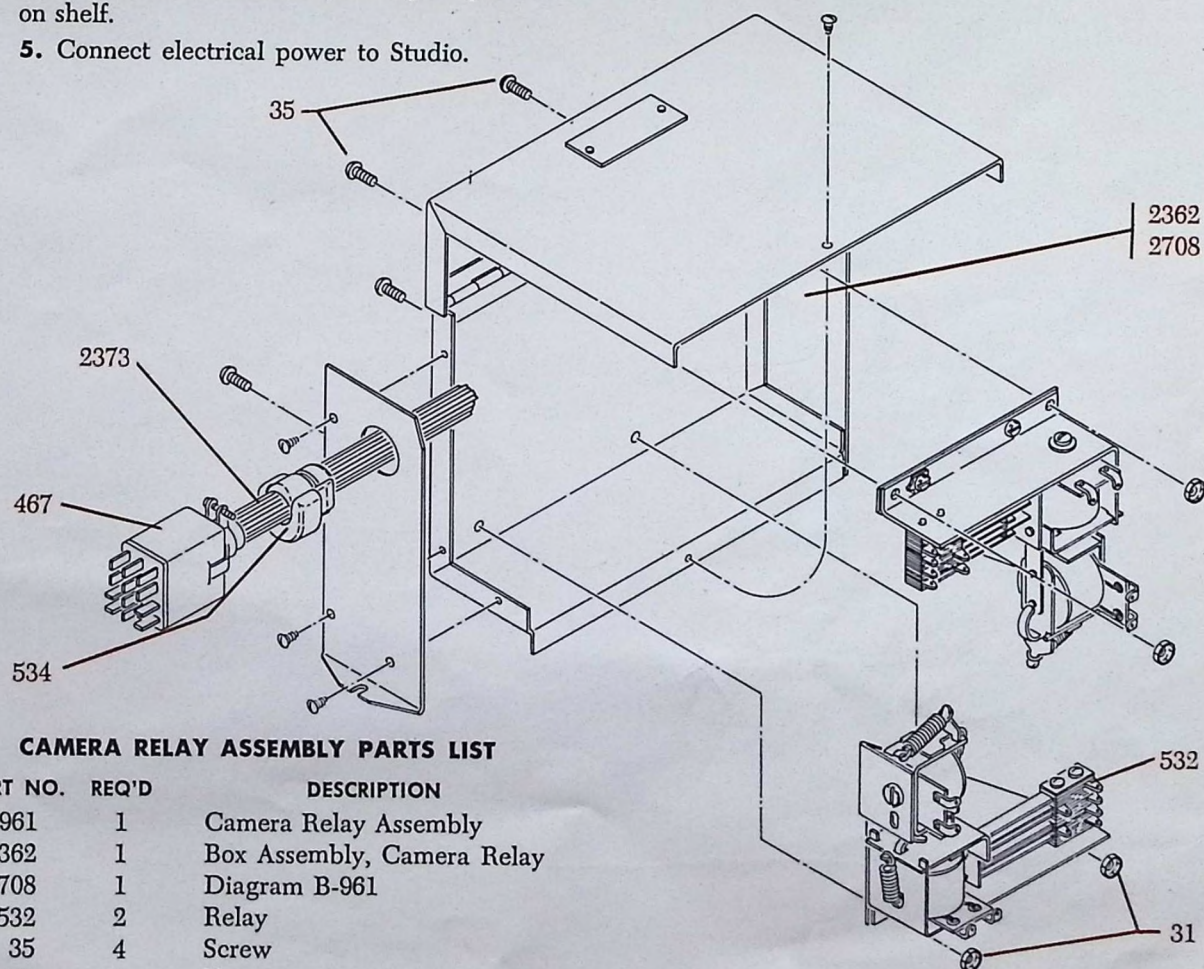
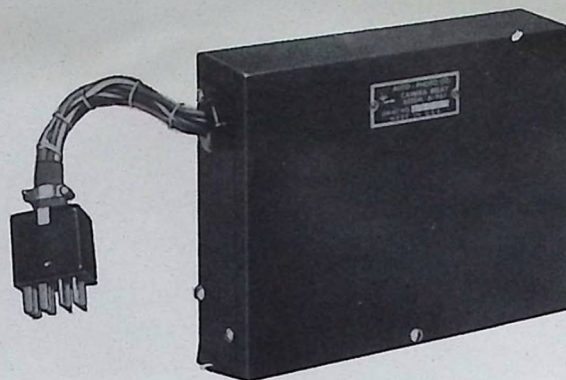
Camera relay assembly

REMOVAL

1. Disconnect electrical power to Studio by removing service cord plug from wall receptacle.
2. Rotate Camera Assembly to outward position.
3. Unplug Camera Relay Assembly's Jones plug.
4. Remove two screws at base.

INSTALLATION

1. Rotate Camera Assembly to outward position.
2. Replace two screws at base and tighten.
3. Insert Jones plug from Camera Relay Assembly into receptacle located directly on top of camera and directly in line with Relay Assembly.
4. Rotate Camera Assembly to original position on shelf.
5. Connect electrical power to Studio.



CAMERA RELAY ASSEMBLY PARTS LIST

PART NO.	REQ'D	DESCRIPTION
961	1	Camera Relay Assembly
2362	1	Box Assembly, Camera Relay
2708	1	Diagram B-961
532	2	Relay
35	4	Screw
31	4	Nut
534	1	Bushing
2373	1	Harness, Camera Relay
467	1	Jones Plug

Figure 13. Camera Relay Assembly

Coin mechanism assembly

REMOVAL

1. Disconnect electrical power to Studio by removing service cord plug from wall receptacle.
2. The only part of the Coin Mechanism Assembly which is removable is the Slug Rejector Assembly. To remove, raise pivot latches mounted on the right and left sides of Slug Rejector Assembly and remove from mounting channel.

INSTALLATION

1. Raise coin return lever, part #1707.
2. Slide Slug Rejector Assembly in mounting channel and lower pivot latches.
3. Connect electrical power to Studio.

COIN MECHANISM ASSEMBLY PARTS LIST

PART NO.	REQ'D	DESCRIPTION
306	1	Slug Rejector, National
306-1	1	Mounting Channel
306-2	1	Slug Rejector
306-3	1	Coin Switch
306-4	1	Coin Switch Bracket
306-5	1	Coin Reject Solenoid

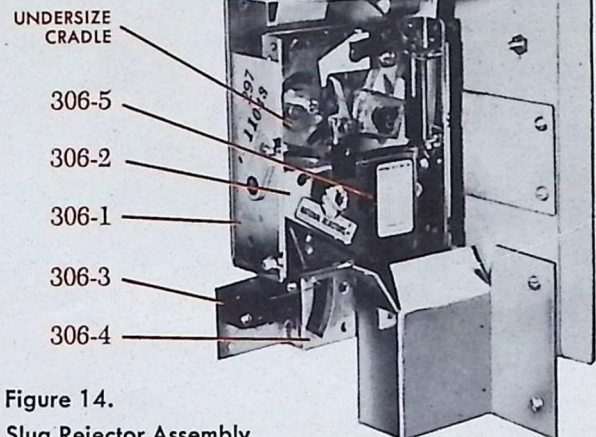


Figure 14.
Slug Rejector Assembly

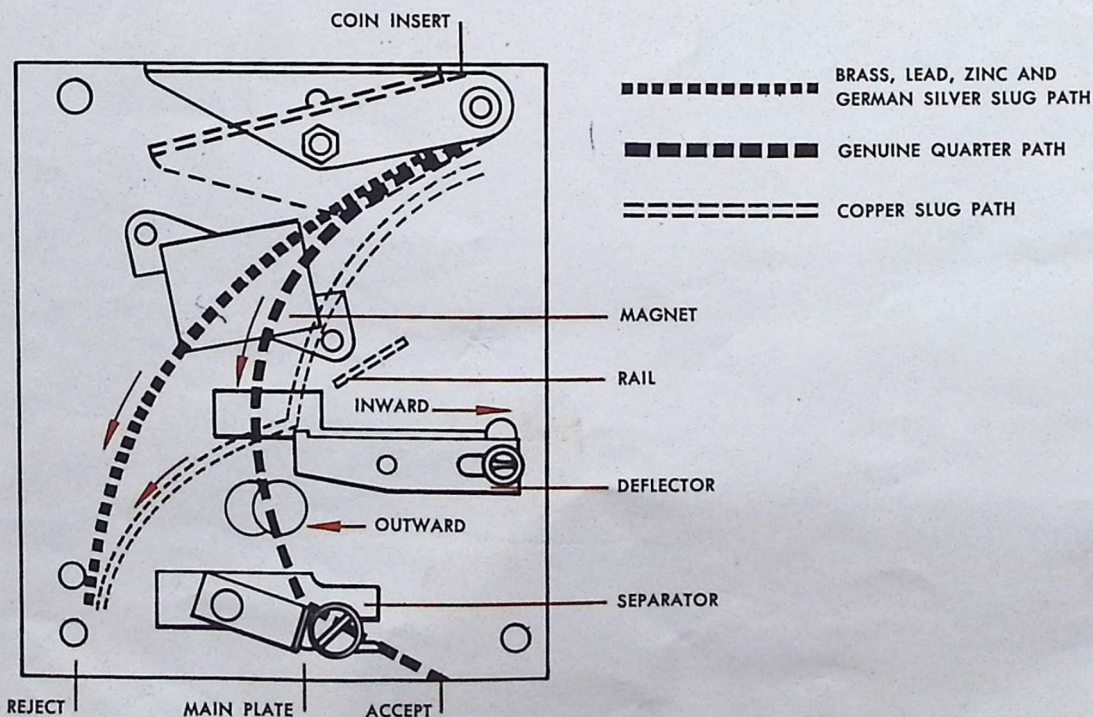


Figure 15. Slug Rejector Diagram

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REMOVAL

- 1.** With Spider Assembly in its down position, disconnect electrical power to Studio by removing service cord from wall receptacle.
- 2.** Support Assembly and nut plate with one hand and remove the two screws that hold Assembly to bottom side of upper tray.
- 3.** Lay Assembly on upper tray.
- 4.** Disconnect electrical terminals.

INSTALLATION

1. Connect electrical terminals with Assembly laying on upper tray.
2. Support Assembly and nut plate with one hand and attach Assembly to under side of upper tray with two screws.
3. Connect electrical power to Studio.

Delivery Unit Assembly parts list, see page 24.

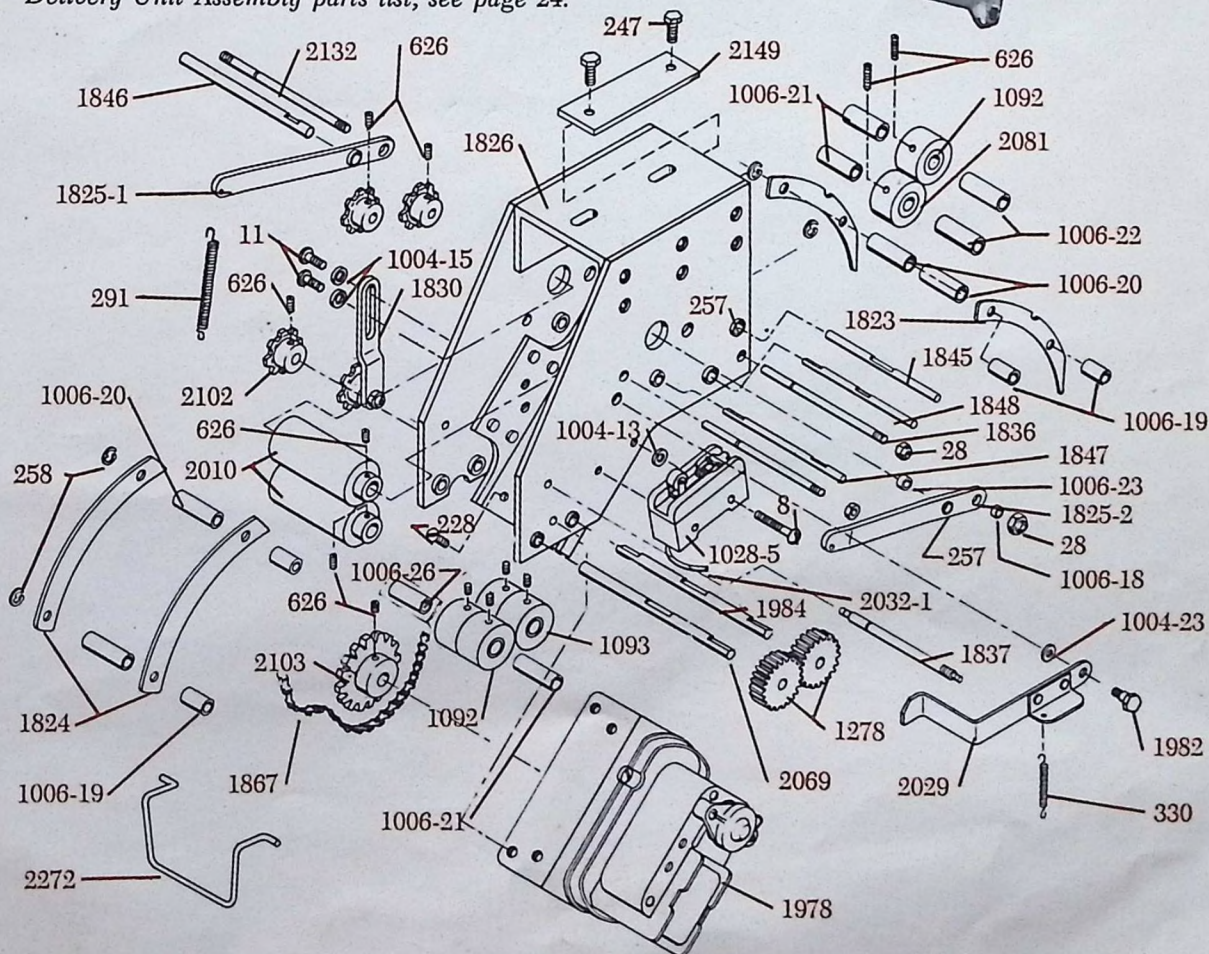
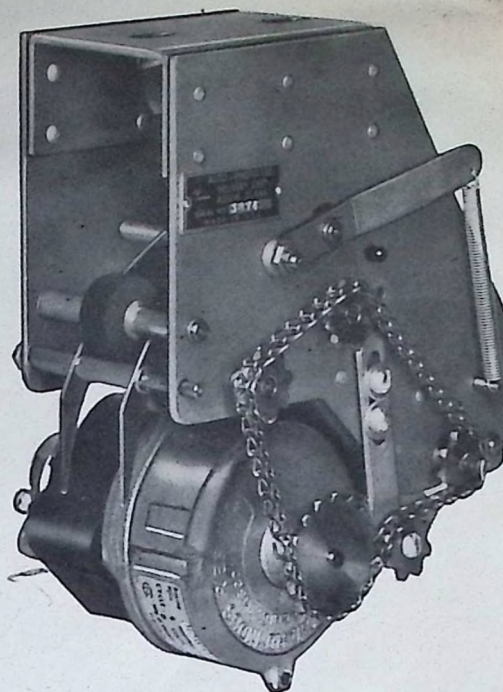


Figure 16. Delivery Unit Assembly

DELIVERY UNIT ASSEMBLY PARTS LIST

PART NO.	REQ'D	DESCRIPTION	PART NO.	REQ'D	DESCRIPTION
944	1	Delivery Unit Assembly	626	1	Setscrew, Stainless Steel
1826	1	Frame Assembly	1093	2	Pickoff Roll, Drive
257	10	Bushing	626	1	Setscrew, Stainless Steel
1830	1	Idler Assembly	1978	1	Motor, Delivery Unit
1831	1	Idler Arm	1867	1	Chain, Drive
1832	1	Sprocket	1278	2	Gear Pickoff
13	1	Screw	1984	1	Shaft, Pickup, Idler
28	1	Nut	2029	1	Switch Arm
260	1	Bushing	1982	1	Shoulder Screw
1825-1	1	Lever Arm, Right Hand	1028-5	1	Micro Switch
257	1	Bushing	2032-1	1	Wire Lead
1825-2	1	Lever Arm, Left Hand	291	2	Spring, Lever Arm
257	1	Bushing	2103	1	Sprocket
1823	2	Outer Paper Guide	2081	1	Roll, Delivery
1824	2	Inner Paper Guide	626	1	Setscrew, Stainless Steel
2132	1	Support Rod, Upper	1004-23	1	Washer
1837	1	Support Rod, Lower	1004-13	2	Washer
1836	2	Support Rod, Short	2272	1	Stop, Carrier
1845	1	Idler Shaft	1006-26	1	Spacer
1846	1	Squeeze Idler Shaft	1004-15	2	Washer
1847	1	Squeeze Drive Shaft	2102	3	Sprocket
1848	1	Drive Shaft	2069	1	Shaft, Pickoff Driven
2010	2	Rubber Roll	330	1	Spring, Switch Arm
626	1	Setscrew, Stainless Steel	258	4	Snap Ring
1006-18	2	Spacer	28	5	Nut
1006-19	4	Spacer	626	4	Setscrew, Stainless Steel
1006-20	4	Spacer	228	4	Screw
1006-21	3	Spacer	11	2	Screw
1006-22	2	Spacer	8	2	Screw
1006-23	2	Spacer	2149	1	Plate, Nut
1092	3	Pickoff Roll Driven	247	2	Screw

Delivery Unit Assembly parts illustration, see page 23.

Developer tank assembly

REMOVAL

1. With Spider Assembly in its down position and all carriers at their "in" position, disconnect electrical power to Studio by removing service cord plug from wall receptacle.
2. Open Studio door and remove heater and thermostat plugs from power outlets.
3. Remove chemical splash guard and tanks

being careful not to spill solutions on clothing or floor.

INSTALLATION

1. Insert heater and thermostat assemblies into wells of tank #1 and with tank on tray insert heater and thermostat plugs into outlets on wall of Studio.

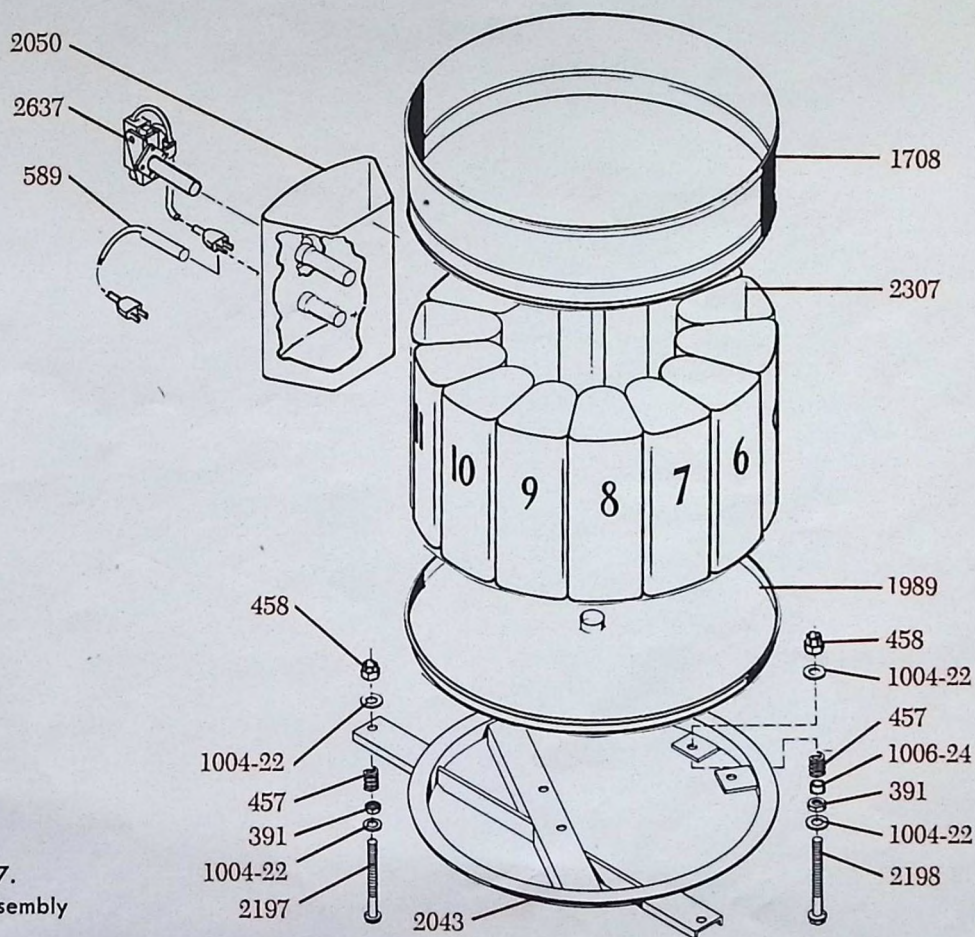


Figure 17.
Developer Assembly

DEVELOPER TANK ASSEMBLY PARTS LIST

PART NO.	REQ'D	DESCRIPTION	PART NO.	REQ'D	DESCRIPTION
1708	1	Guard, Splash	458	3	Nut
391	3	Nut	1004-22	6	Washer
2043	1	Support Assembly, Developer	1989	1	Tray, Tank
2198	1	Bolt Assembly, Back Support	2307	12	Tank, Small Plastic
2197	2	Bolt Assembly, Front Support	2050	1	Tank Assembly, Developing
1006-24	1	Spacer	589	1	Heater
457	3	Spring	2637	1	Thermostat Assembly

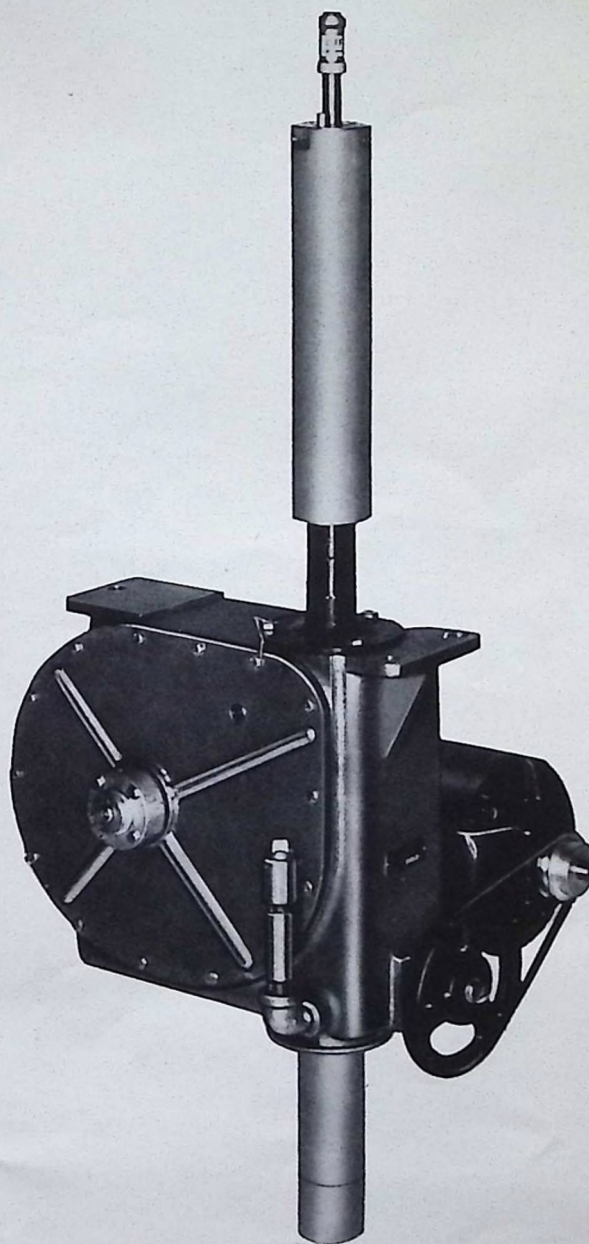
Developer transmission assembly

REMOVAL

1. Disconnect electrical power to studio by removing plug from wall outlet.
2. Run transmission drive pulley(2107) counter-clockwise by hand until transmission and Spider Assembly (974) are in their lowest position.
3. Remove spherical nut (2716) and Spider Assembly (974).
4. Disengage and drop the outer shaft guard (2235) from drive flange (1991). Loosen the three set screws (512) affixing drive flange and remove flange from transmission shaft.
5. Remove outer shaft guard (2235). Loosen the two set screws (61) on bumper spring collar (2293) and remove inner shaft guard (2236), bumper spring (2237), and bumper spring collar (2293) as assembled.
6. Remove tank tray (1989).
7. Remove the four motor mount securing screws (408) from transmission housing. With motor free, lay to right-hand side of dark room compartment floor, along with motor drive V belt. It is not necessary to disconnect the three electrical wires leading to the motor.
8. Remove the two bolts (2073), two hex-nuts (391) and two washers (1004-22) which secure Transmission Assembly to front side of transmission support (2043). Then remove rear bolt (2072) and the one washer (1004-22).
9. Rotate entire Transmission Assembly clockwise approximately $\frac{1}{4}$ turn and lift upward and out.

INSTALLATION

1. Fill Developer Transmission Assembly with oil to level of filler hole. The Transmission holds approximately 5 pints. A DTE light weight machine oil is recommended.
2. Disengage and lower the outer shaft guard tube (2235). Loosen the three set screws (512) and remove drive flange (1991). Remove outer shaft guard tube (2235). Loosen the two set screws (61) on bumper spring collar (2293) and remove inner shaft guard tube (2236), bumper spring (2237), and bumper spring collar (2293) as assembled.
3. Install Transmission in Studio and mount to support ring beginning with rear bolt (2072) and washer (1004-22). Then secure front side



with the two bolts (2073), hex-nuts (391) and washers (1004-22). The washers go between top of transmission casting and bottom of support ring.

4. Install transmission motor (246) to transmission housing, and "V" belt over transmission and motor pulleys. Position motor so that there is at least $\frac{1}{2}$ " slack in "V" belt.

5. Align transmission for proper height and level using alignment gauge. (Refer to page 4).

6. Install tank tray (1989).

7. Insert bumper spring (2237) into inner shaft guard (2236). Slip bumper spring collar (2293) into offset on bottom of inner shaft guard. Slide Assembly onto guide tube (1793) and using the two set screws (61), affix collar to guide tube approximately seven inches from bottom of tank tray. Slide outer shaft guard (2235) over inner shaft guard and install drive flange (1991), but do not tighten set screws any more than necessary to hold flange in place prior to adjustment as described in Step #9.

8. Install Spider Assembly (974) on drive flange (1991) making sure that pin on drive flange is in slot on spider assembly casting.

9. Whenever the drive flange (1991) is removed from drive collar (1992) it is necessary, when reinstalling, to check clearance between the "turnout" cam (1843) and the "turnout" pin (2276) on trigger assembly linkage and to realign carriers to Feed-Down Assembly (942) before tightening set screws in drive flange to drive collar. This is accomplished by turning the transmission drive pulley (2107) counter-clockwise by hand, to raise top of transmission shaft to within $\frac{1}{2}$ " of the ball guide bushing mounted to the underside of the upper tray.

Rotate Spider Assembly so as to position the center of the loop on one of the spider arm castings, see Figure 23, at a point directly under the "turn in" pin on trigger assembly linkage. Raise Spider Assembly to its topmost position by turning transmission pulley counter clockwise by hand. Operate trigger linkage by hand, so as to bring and hold in place the "turnout" pin to its down position, and check clearance between closest point of turnout cam on spider assembly casting and any part of trigger linkage. When Spider Assembly is secured by tightening screws in drive flange (1991), this distance should measure no less than $\frac{1}{16}$ " and no more than $\frac{1}{8}$ ".

10. Replug service cord into location power outlet.

11. Using the paper alignment gauge (2222), align the paper carriers. Refer to page 6, figure 3.

12. Secure outer shaft guard tube (2235) to drive flange and install spherical nut (2716).

13. Run transmission under power a short time while noting the amount of agitation the Spider Assembly develops while operating in its lower position. If there is little agitation, loosen the two set screws (61) that affix bumper spring collar (2293) to the guide tube (1793) and move collar to a lower position. *Agitation is necessary for proper development.* Should Transmission pound on down stroke, move Collar to higher position to eliminate noise.

14. Adjust each of the seven paper carriers (2354) to the Feed-Down Assembly (942). Refer to Page 6, Figure 4.

15. Check alignment of Delivery Unit Assembly (944) to paper carriers. Refer to Page 7, Figure 6.

Developer Transmission Assembly parts illustration, see page 28.

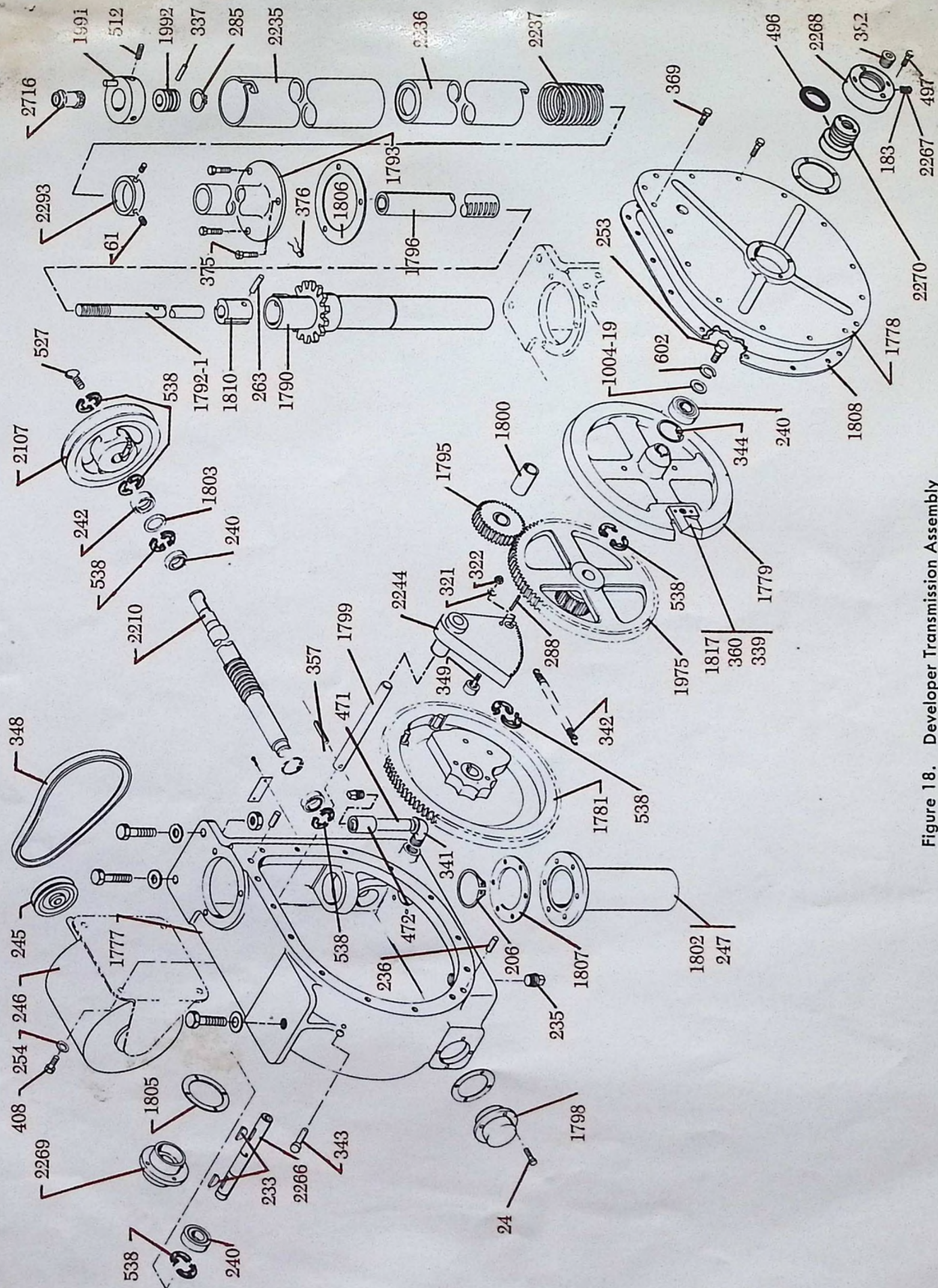


Figure 18. Developer Transmission Assembly

DEVELOPER TRANSMISSION ASSEMBLY PARTS LIST

PART NO.	REQ'D	DESCRIPTION	PART NO.	REQ'D	DESCRIPTION
943	1	Developer Transmission Assembly	1806	1	Gasket
1777	1	Housing	1807	1	Gasket
1778	1	Cover	1808	1	Gasket
1779	1	Index Disc	2237	1	Spring, Bumper
1779-1	1	Index Disc	1004-19	1	Washer
1817	1	Index Lug	246	1	Motor
339	1	Cap Screw	2032-6	1	Wire Lead
360	2	Rollpin	2032-7	1	Wire Lead
1780	1	Sector Gear Assembly	2032-9	1	Wire Lead
2244	1	Sector Gear	408	4	Machine Screw
349	1	Cam Follower	247	13	Cap Screw
321	1	Lock Washer	24	14	Cap Screw
322	1	Nut	253	1	Cap Screw
288	1	Groove Pin	357	1	Roll Pin
232	2	Bearing	369	1	Cap Screw
1781	1	Worm Wheel & Cam Assembly	240	4	Bearing
1790	1	Index Tube Assembly	242	1	Oil Seal
2914	1	Detent Spring	254	4	Washer
2913	1	Detent Pin	342	1	Spring
354	1	Screw	343	1	Clevis Pin
4	1	Snap Ring	183	2	Set Screw
2210	1	Shaft, Worm	233	2	Woodruff Key
1792	1	Index Shaft Assembly	2267	2	Stop, Adjusting Retainer
1792-1	1	Index Shaft	235	2	Pipe Plug
1992	1	Drive Collar	2270	1	Retainer, Adjusting
1810	1	Detent Disc	341	1	Street Ell
337	1	Dowel Pin	2268	1	Flange, Adjusting
263	1	Groove Pin	602	1	Lockwasher
2716	1	Nut, Spherical	538	7	Snap Ring
2724	1	Arrow Label	496	1	O-Ring
1991	1	Drive Flange Assembly	344	2	Snap Ring
1991-1	1	Drive Flange	497	4	Screw
498	1	Groove Pin	206	1	Snap Ring
512	3	Set Screw	61	2	Set Screw
1793	1	Guide Tube Assembly	471	1	Nipple
1795	1	Idler Assembly	472	1	Coupling
1796	1	Rack Assembly	2293	1	Collar, Bumper Spring
2266	1	Gear Shaft	236	2	Dowel Pin
2269	1	Retainer, Plain	2107	1	Pulley Assembly
1798	1	Retainer, Worm Shaft	245	1	Pulley
1799	1	Idler Shaft	348	1	V-Belt
1800	1	Spacer, Idler	382	1	Pipe Plug
1802	1	Extension Sleeve Assembly	285	1	Snap Ring
1975	1	Cluster Gear Assembly	2235	1	Shaft Guard, Outside
1803	1	Spacer	2236	1	Shaft Guard, Inside
527	1	Thumb Screw	376	1	Seal, Lead
1805	3	Gasket	375	1	Screw
			618	2	Cap Screw

Door assembly

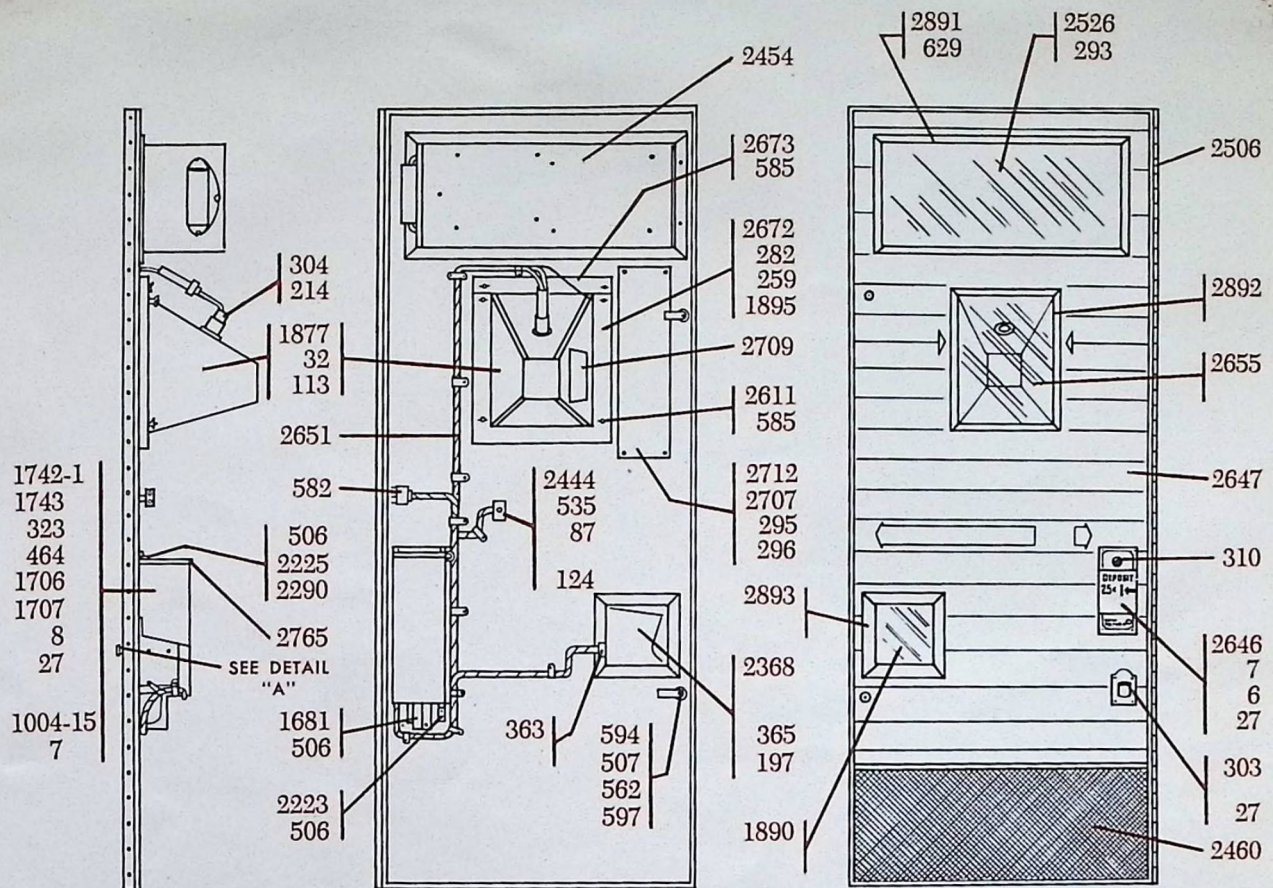


Figure 19. Door Assembly

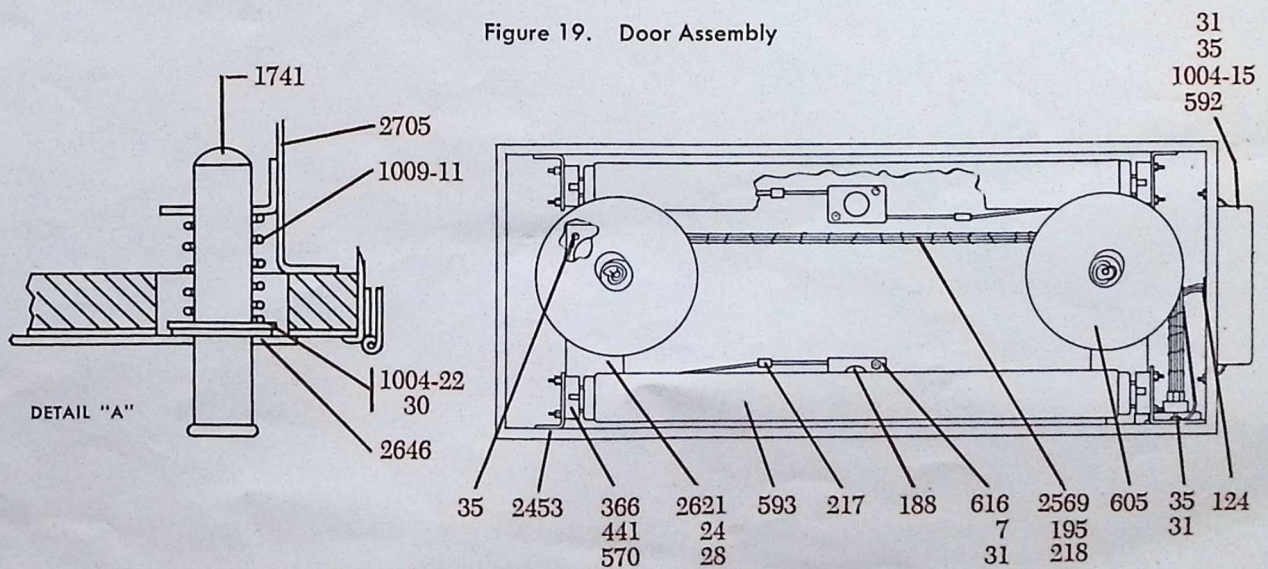


Figure 20. Upper Light Box

DOOR ASSEMBLY PARTS LIST

PART NO.	REQ'D	DESCRIPTION	PART NO.	REQ'D	DESCRIPTION
973	1	Door Assembly	197	1	Tube, Strobe
2647	1	Insert, 25¢ Door and Panel	2651	1	Harness Assembly, Door
2526	1	Glass, Top	582	1	Plug, Jones
2655	1	Glass, Funnel	363	1	Socket
1890	1	Glass, Lower Light	364	1	Cap, Cord Clamp
293	16	Clip, Speed	2444	1	Box, Switch
2891	1	Frame Assembly, Top	535	1	Switch
2893	1	Frame Assembly, Lower	87	2	Screw
2892	1	Frame Assembly, Center	506	2	Screw
629	20	Nails	124	1	Grommet, Rubber
2460	1	Trim, Decorative Door	310	1	Instruction Light, Green
2506	1	Hinge, Door	594	2	Lock, Door (Keyed in Pairs)
2454	1	Light Assembly, Upper	507	1	Key Ring
2453	1	Box Assembly, Upper Light	562	2	Ring, Lock
592	1	Ballast	597	4	Screw
593	2	Tube, Fluorescent	2765	1	Cover Assembly, Coin Mechanism
366	4	Lampholder	2225	1	Hinge, Cover
616	2	Socket, Starter	2290	1	Pin, Hinge
188	2	Starter	506	4	Screw
2621	2	Bracket, Strobe	303	1	Cup, Coin Return
605	2	Reflector, Tube	7	4	Screw
441	8	Screw	27	4	Nut
570	8	Nut	2709	1	Sequence Label, Tank
412	4	Screw	2707	1	Backing, Instruction Sheet
35	13	Screw	2712	1	Maintenance Label, Care and
31	17	Nut	295	4	Screw
24	2	Screw	296	4	Washer
28	2	Nut	2646	1	Plate, 25¢ Coin
1004-15	2	Washer	7	1	Screw
124	1	Grommet, Rubber	6	3	Screw
195	5	Clamp, Wire	27	4	Nut
217	7	Splice, Small	1681	1	Guard, Switch
218	1	Splice, Large	506	4	Screw
2569	1	Harness Assembly, Light Box	2223	1	Catch, Cover
2672	1	Retainer, Funnel	2705	1	Coin Chute Assembly
2673	1	Retainer Top, Funnel	1742-1	1	Coin Chute
282	2	Screw	1743	1	Adj'g Coin Guide
259	2	Nut	323	2	Screw
585	2	Nut	464	2	Spring
2611	4	Stud, Funnel	1706	1	Spacer
585	4	Nut, Wing	1707	1	Lever
1877	1	Funnel	8	1	Screw
32	1	Screw	27	3	Nut
113	1	Lockwasher	31	4	Nut
304	1	Instruction Light, Red	35	3	Screw
214	2	Disconnects	1004-15	5	Washer
1895	2	Gasket, Rubber	7	1	Screw
2368	1	Fixture, Lower Light	1009-11	1	Spring
35	2	Screw	1741	1	Pin-Coin Return
31	2	Nut	30	1	Ring
365	1	Plate, Mounting	1004-22	1	Washer

Paper feed-down assembly

REMOVAL

1. Disconnect electrical power to Studio by removing service cord plug from wall receptacle.
2. Disconnect wiring.
3. Rotate camera to outward position to gain access. Remove two machine screws which hold Paper Feed-Down Assembly to the upper tray.

NOTE: Support weight of Assembly with one

hand while removing last screw to avoid dropping and possible damage to Assembly.

INSTALLATION

1. Attach Assembly to upper tray with two machine screws, connect wiring.
2. Connect electrical power to Studio.
3. Align paper carriers to Paper Feed-Down Assembly (see page 6, figure 4).

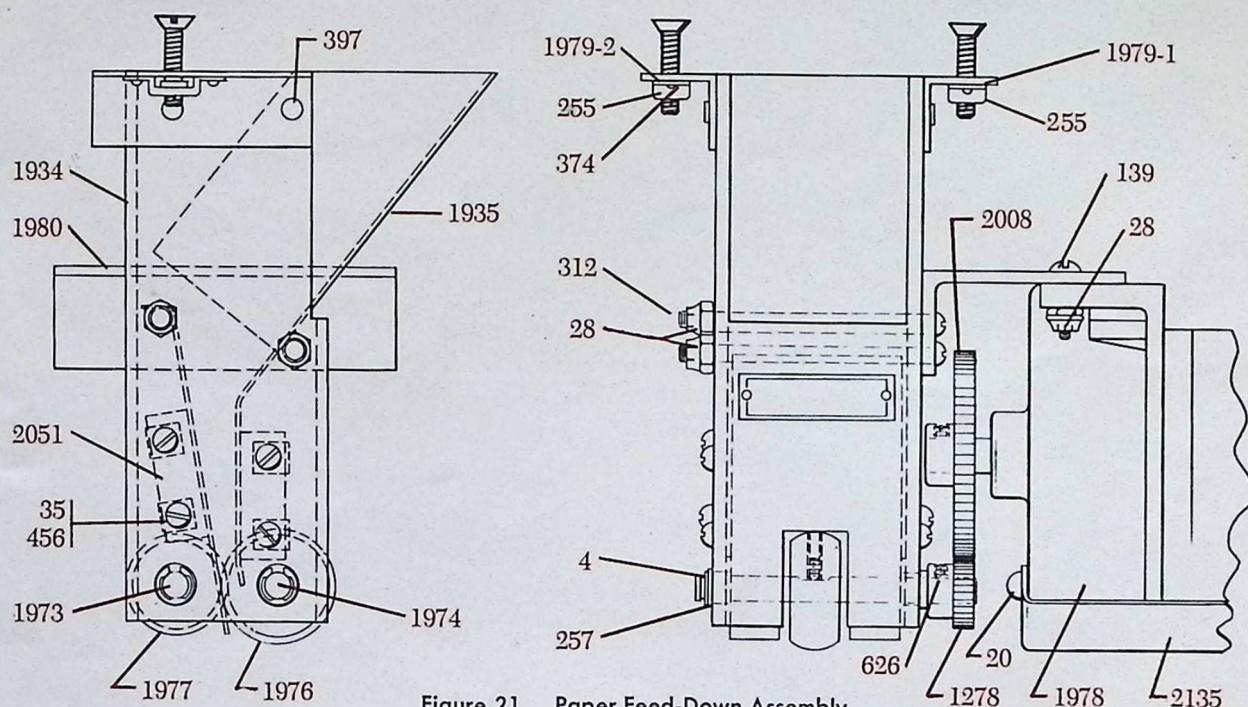


Figure 21. Paper Feed-Down Assembly

PAPER FEED-DOWN ASSEMBLY PARTS LIST

PART NO.	REQ'D	DESCRIPTION	PART NO.	REQ'D	DESCRIPTION
942	1	Paper Feed-Down Assembly	1935	1	Chute Assembly
4	3	Snap Ring	1973	1	Shaft, Drive
20	2	Screw	1974	1	Shaft, Idler
28	4	Nut	1976	1	Roll, Idler
35	7	Screw	626	1	Setscrew, Stainless Steel
139	2	Screw	1977	1	Roll, Drive
255	2	Nut, Shell	626	1	Setscrew, Stainless Steel
312	2	Screw	1978	1	Motor
374	4	Rivet	1979-1	1	Attach Angle, Left
397	4	Rivet	1979-2	1	Attach Angle, Right
456	1	Screw	1980	1	Motor Bracket
626	1	Setscrew, Stainless Steel	2008	1	Gear Assembly
1278	1	Gear	626	1	Setscrew, Stainless Steel
1934	1	Frame Assembly	2051	1	Chute, Rear Assembly
257	4	Bushing	2135	1	Pan, Feed Down, Oil

Paper magazine



Figure 22. Paper Magazine

REMOVAL

1. Rotate camera assembly to outward position. Do not remove camera.
2. Open camera door and disengage gears that drive paper feed rollers by pushing clutch to the left (see page 5, figure 2).
3. Remove paper from paper chute and remove magazine.

INSTALLATION

1. Remove tape from paper feed slot of loaded magazine.
2. With camera in outward position on shelf place magazine in opening on top of camera housing.
3. Open camera door and disengage gears that drive paper feed rollers by pushing clutch to the left (see page 5, figure 2).
4. Guide leading edge of paper from magazine into the slot of the lens housing backing plate and between the rubber rollers. Rotate outer roller by hand until paper strip protrudes below base of camera.

NOTE: Cut protruding end of paper at approximately 60 degree angle to assist threading paper through the camera.

5. Move clutch to right to re-engage gears.
6. Cut that portion of paper extending below camera base by pushing solenoid plunger which operates paper cut-off knife.
7. Close camera door and rotate camera to operating position on shelf which is as far back to the left as it will go.

LOADING MAGAZINE

1. Transfer sensitized paper from factory package to magazine in a dark room illuminated with No. 2 Wratten safe-light, or equivalent. Work at least six feet from light source.
2. Place magazine on a table with the cover up. Remove photographic tape that seals joint between cover and magazine. Remove wing nut, washer, and lift off cover. Remove remnant of paper remaining in magazine.
3. With a soft clean cloth, carefully wipe inside of magazine and clean velvet-lined feed slot.
4. Place roll of sensitized paper in magazine so that end of roll protrudes through slot at bottom of magazine.

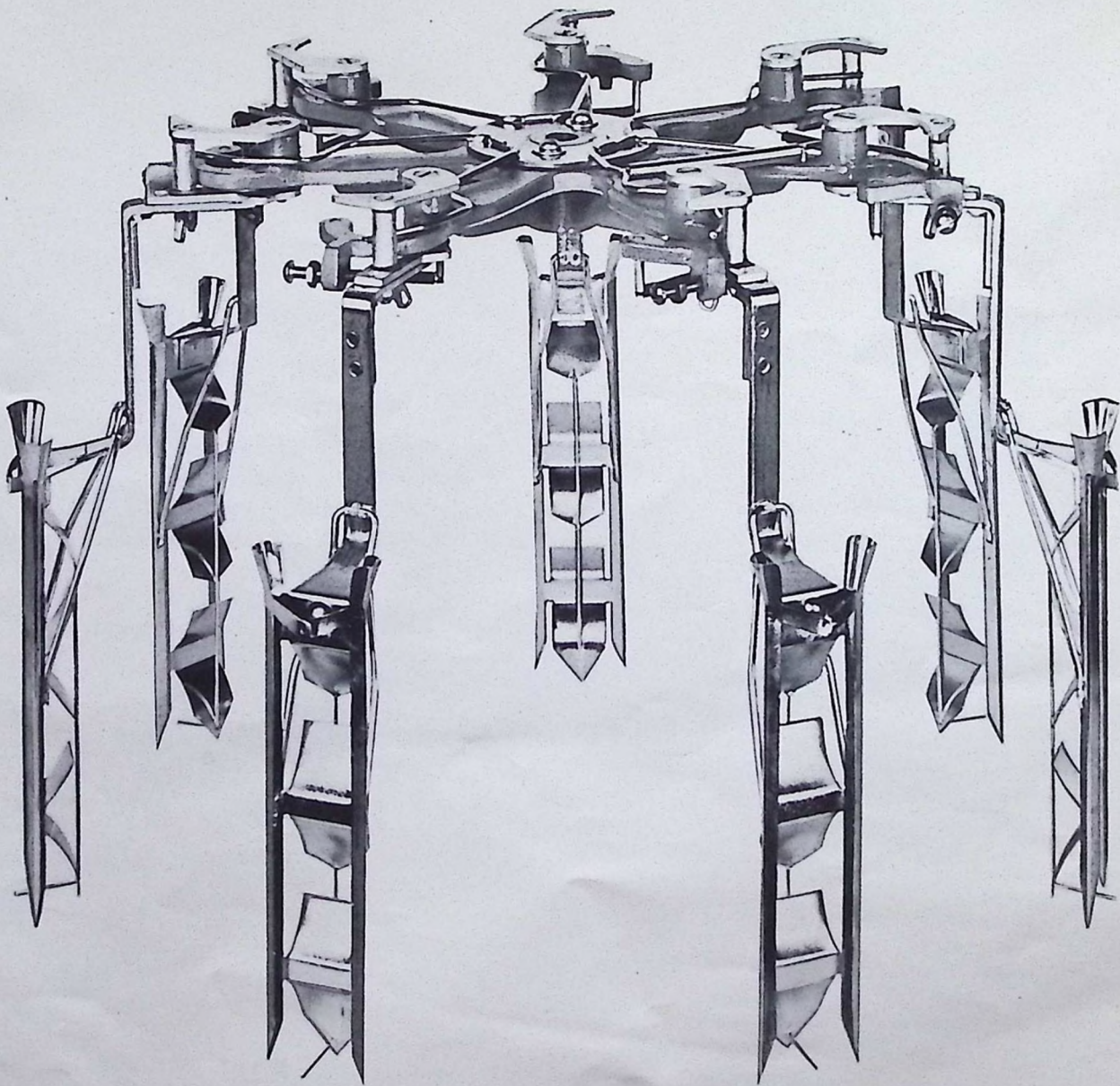
Spider assembly

REMOVAL

1. With Spider Assembly in down position, disconnect electrical power to Studio by removing service cord plug from wall receptacle.
2. Remove spherical nut and lift Spider Assembly from transmission shaft. To avoid bending paper carriers set Assembly upside down.

INSTALLATION

1. With transmission shaft in its down position, place Spider Assembly on shaft with the positioning pin on the top of the transmission shaft collar fitting into the slot on the spider assembly casting.
2. Connect electrical power to Studio.



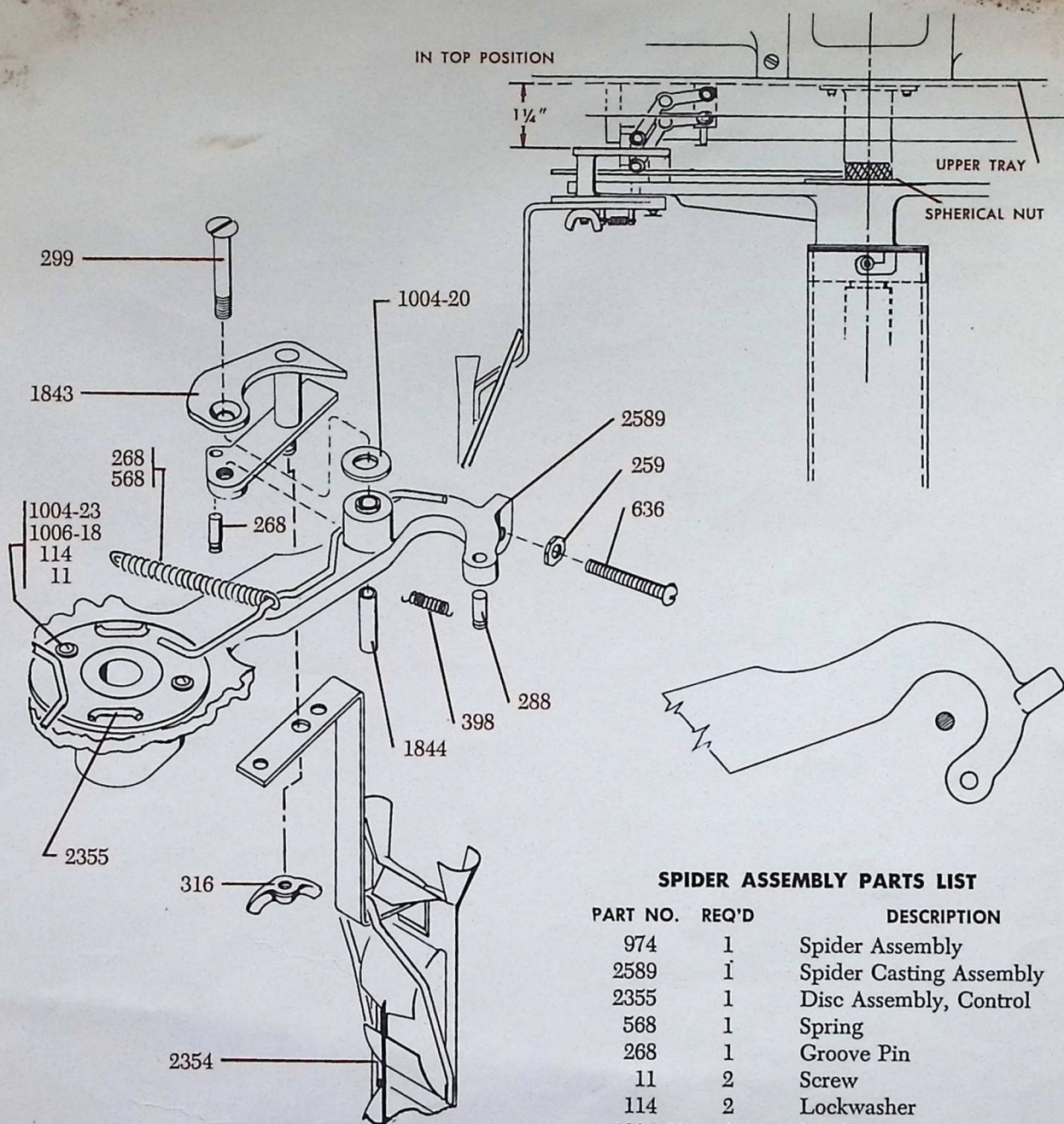


Figure 23. Spider Assembly

SPIDER ASSEMBLY PARTS LIST

PART NO.	REQ'D	DESCRIPTION
974	1	Spider Assembly
2589	1	Spider Casting Assembly
2355	1	Disc Assembly, Control
568	1	Spring
268	1	Groove Pin
11	2	Screw
114	2	Lockwasher
1004-23	2	Washer
1006-18	2	Spacer
1843	7	Cam Assembly, Turn
1844	7	Spacer
1004-20	7	Washer
299	7	Screw
398	7	Spring, Stainless Steel
288	7	Groove Pin
316	7	Nut, Wing
636	7	Screw, Stainless Steel
259	7	Nut
2354	7	Carrier Assembly, Paper

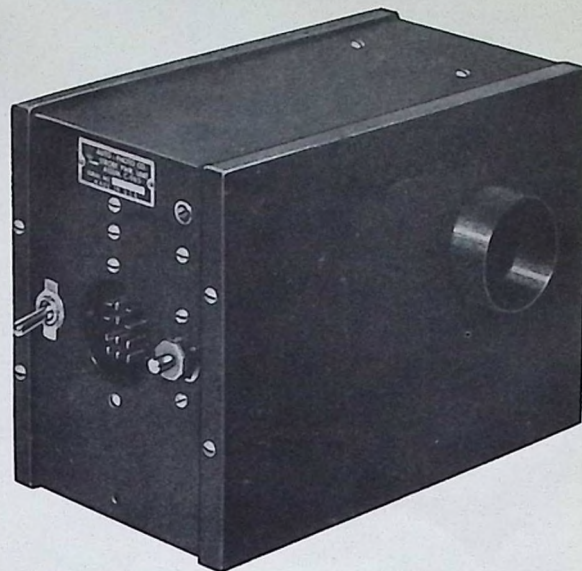
Strobe unit assembly

REMOVAL

1. Disconnect electrical power to Studio by removing service cord plug from wall receptacle.
2. Remove main harness Jones plug from Strobe Assembly.
3. Slip off air vent hose.
4. Remove wing nut from carriage bolt holding wood mounting block.
5. Tilt Strobe Unit Assembly up to release mounting block pins and remove.

INSTALLATION

1. Place Strobe Unit Assembly between wood mounting blocks.
2. Insert carriage bolt through wood mounting block and add wing nut and tighten.
3. Attach air vent hose.
4. Reset Jones plug from main harness into Assembly receptacle.
5. Connect electrical power to Studio.



STROBE UNIT ASSEMBLY PARTS LIST

PART NO.	REQ'D	DESCRIPTION	PART NO.	REQ'D	DESCRIPTION
965	1	Strobe Unit Assembly	506	12	Screw
2214	1	Case, Strobe Unit	2243	1	Plate, Resistor
524	1	Fuse Holder	505	1	Resistor
481	1	Hi-Lo Switch	526	1	Fuse
521	1	Transformer	2316	1	Plate, Hi-Lo
473	3	Capacitor	2320	1	Plate, Fuse Holder
11	6	Screw	587	1	Strip, Single Terminal
617	2	Rectifier	588	1	Strip, Triple Terminal
475	3	Resistor	456	2	Screw
476	2	Resistor	35	2	Screw
523	3	Capacitor	27	5	Nut
2911	1	Bracket, Strobe Relay	182	4	Nut
170	1	Relay	113	8	Lockwasher
561	1	Thermostat	114	10	Lockwasher
482	4	Screw	8	1	Screw
508	2	Screw	1004-15	6	Washer
530	6	Washer	2568	1	Harness, Strobe Unit
31	12	Nut	503	1	Plug
87	8	Screw			

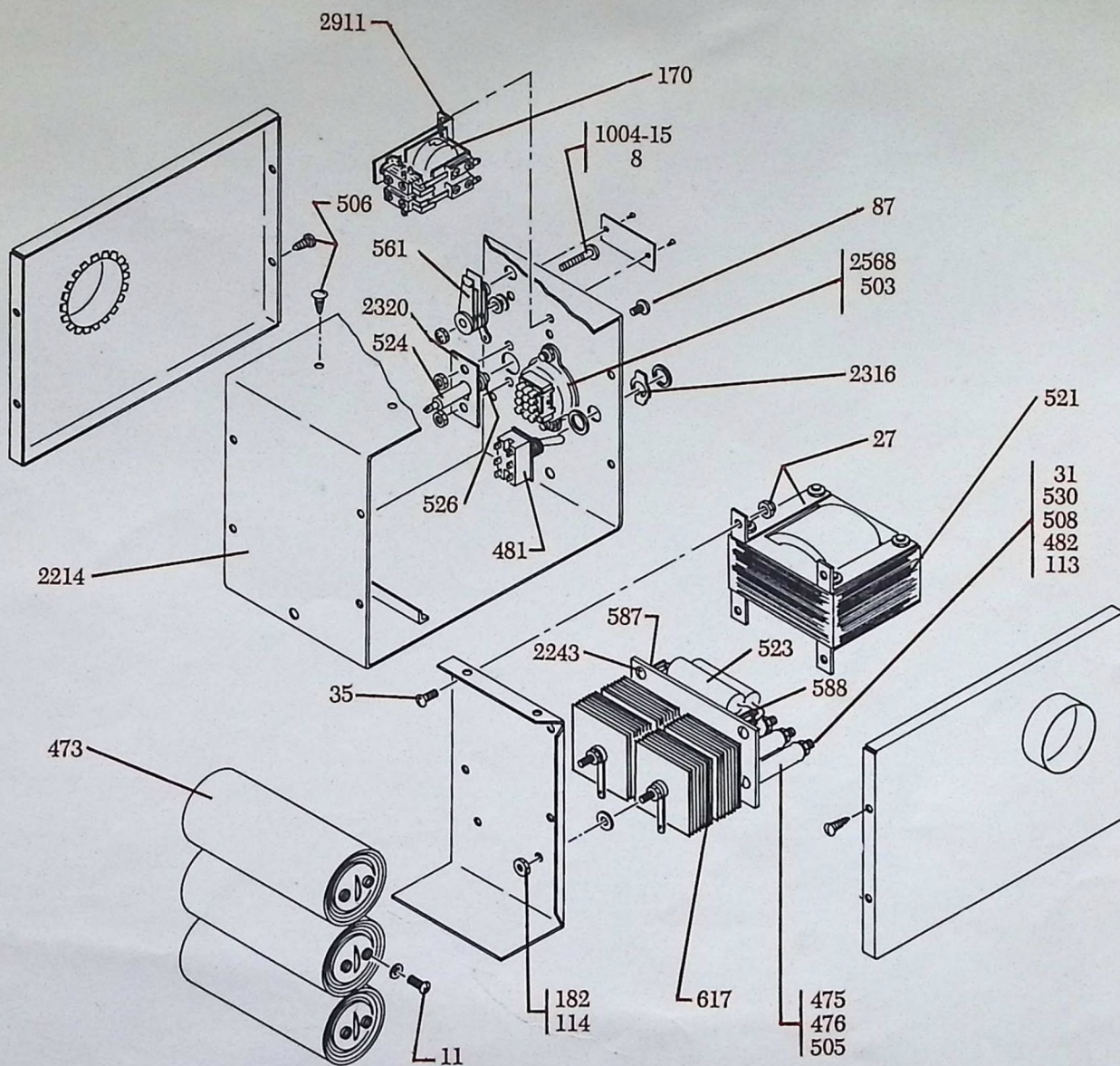


Figure 24. Strobe Assembly

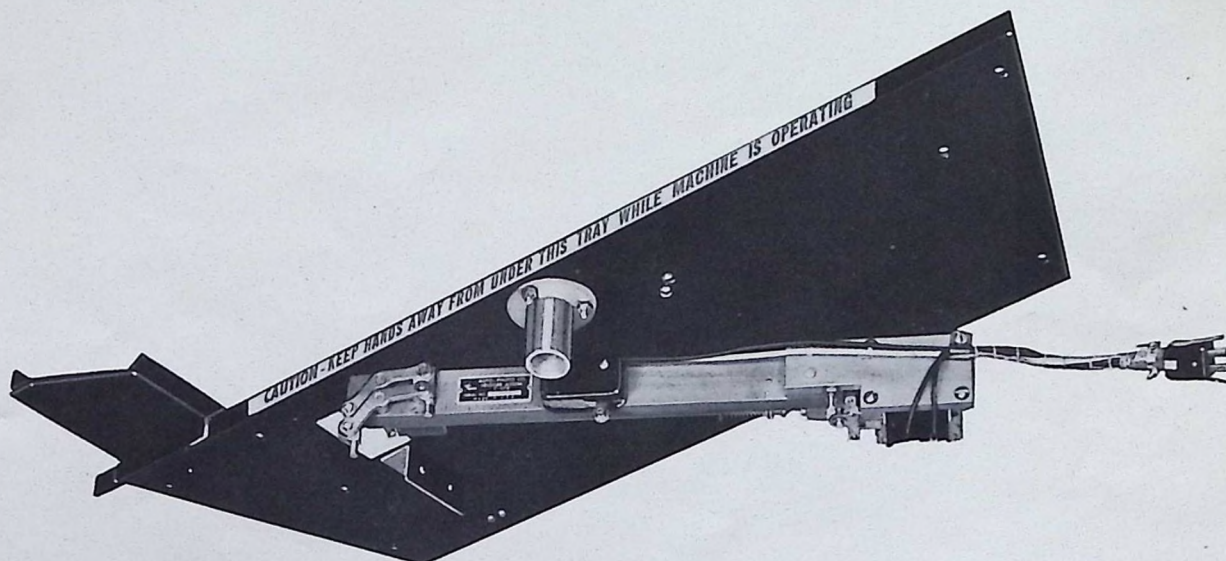
Trigger assembly

REMOVAL

1. With Spider Assembly in its down position, disconnect electrical power to Studio by removing service cord plug from wall receptacle.
2. Rotate camera outward to gain access to screws holding Trigger Assembly to upper tray.
3. Remove stop nut on round-head screw.
4. Support Trigger Assembly with left hand and remove flat-head screw.

INSTALLATION

1. Rotate camera to outward position.
2. Hold Trigger Assembly in left hand and fasten Assembly to bottom side of upper tray with flat-head screw, machine screw and stop nut.
3. Rotate camera to operating position and connect electrical power to Studio.



TRIGGER ASSEMBLY PARTS LIST

PART NO.	REQ'D	DESCRIPTION	PART NO.	REQ'D	DESCRIPTION
978	1	Trigger Assembly	139	1	Screw
2142	1	Frame Assembly	12	3	Screw
2148	1	Lever Assembly, Lower	462	2	Groove Pin
2337	1	Lever Assembly, Upper	1247-10	4	Sleeve, Insulating
2279	1	Turn-In Pin Assembly	2756	1	Block, Solenoid
2276	1	Turn-Out Pin Assembly	2342	1	Pin, Ball
2032-4	1	Wire Lead 10" Yellow & Green Tr.	259	1	Nut
2032-5	1	Wire Lead 11" Yellow & Brown Tr.	444	2	Ring
1028-5	1	Microswitch	445	1	Ring
2755	1	Solenoid Assembly	1006-25	1	Bushing, Spacer
2200	1	Link, Solenoid	258	8	Ring
491	1	Jones Plug	2341	1	Block, Lever
1004-25	2	Washer	463	1	Ring
191	1	Clamp, Plastic	1004-23	2	Washer
8	2	Screw	28	5	Nut
			485	2	Spring
			2591	1	Pin, Solenoid Link

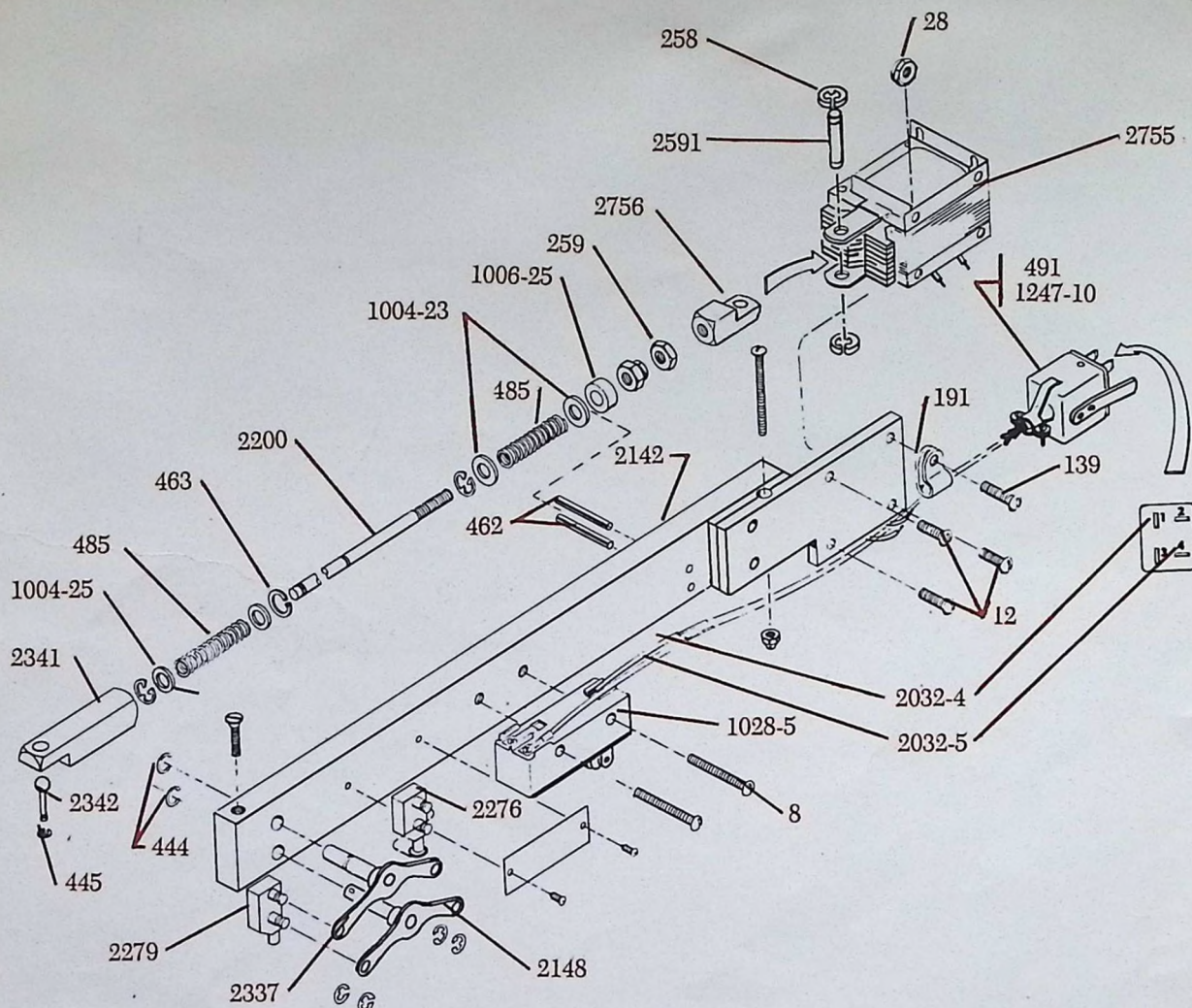


Figure 25. Trigger Assembly

TRIGGER LINKAGE ADJUSTMENT

The Trigger Linkage requires adjustment when turn-in and turn-out pins fail to make a full stroke.

1. To adjust, hold solenoid in its energized position and loosen jam nut (#259).

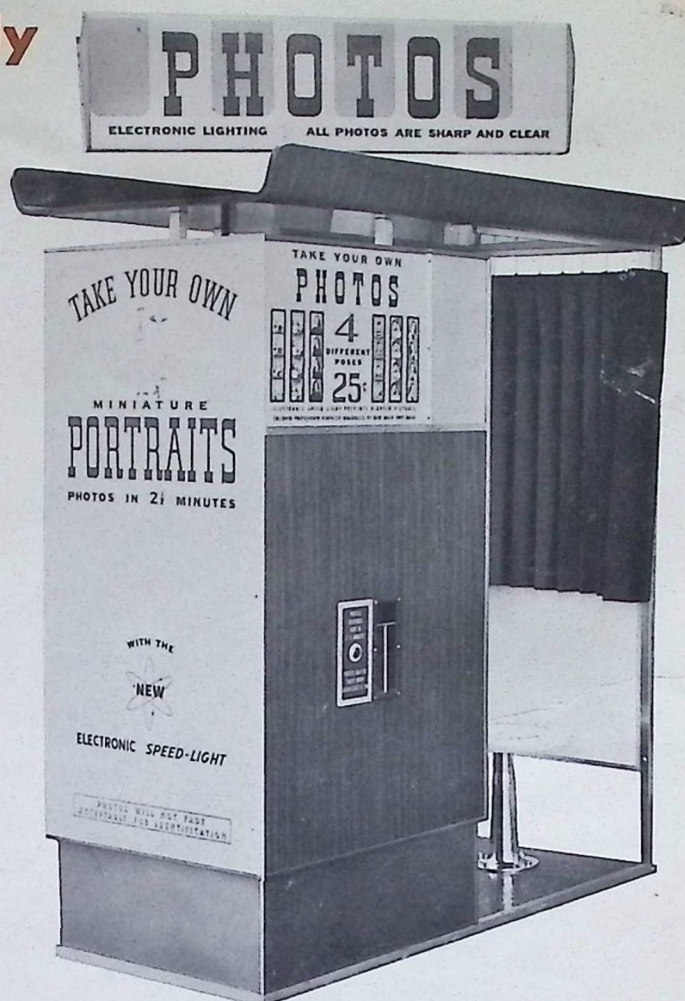
2. Screw solenoid link (#2200), in or out, until carrier turn-out pin (#2276) is in extreme down position without compressing spring (#485)

and tighten jam nut (#259).

3. Let solenoid out to its de-energized position.

4. Turn stop nut (#28) until carrier turn-in pin (#2279) is in extreme down position and tighten stop nut (#28) one-half turn. This releases pressure on ball pin (#2342) and stops forward motion of solenoid on groove pins (#462).

Studio assembly



STUDIO ASSEMBLY PARTS LIST

PART NO.	REQ'D	DESCRIPTION	PART NO.	REQ'D	DESCRIPTION
976	1	Studio Assembly	2199	1	Switch, Cut-Off
2057	1	Case Assembly, Fuse Box	307	1	Counter
155	1	Combination Switch & Receptacle	1253	1	Fan Assembly
504	1	Screw	2120	1	Locator Assembly, Strobe
2058	1	Shield, Insulating	104	2	Screw
156	1	Plug, Cut-Out	2726	1	Block Assembly, Strobe
157	2	Connector	943	1	Transmission Assembly
237	1	Fuse	2072	1	Bolt, Short
2032-8	1	Wire, Lead, Black	2073	2	Bolt, Long
2053	1	Cord, Service	974	1	Spider Assembly
2650	1	Harness Assembly, Main	2620	2	Stud, 12 Tray
220	1	Socket	28	6	Nut
509	1	Socket	1004-15	4	Washer
266	1	Socket	2654	2	Stud
583	1	Socket	536	2	Spring
514	1	Socket	2710	1	Caution Label, Tray
1028-14	1	Microswitch	8	2	Screw
			31	2	Nut

PART NO.	REQ'D	DESCRIPTION	PART NO.	REQ'D	DESCRIPTION
1874	1	Tray, Upper	506	1	Screw
2045	1	Bracket, Feed Down Switch	610	16	Screw
1182	1	Register, Camera	2638	25	Hook Assembly, Drape
130	2	Rivet	2613	1	Hook, Drape
1957	1	Camera Lock Bolt Assembly	2614	1	Ball, Drape Hook
12	2	Screw	637	1	Groove Pin
1924	1	Ball Guide Bushing	2663	2	Drape Assembly, Side
944	1	Delivery Unit Assembly	2664	1	Drape Assembly, Back
942	1	Paper Feed-Down Assembly	12	2	Screw
17	2	Screw	2525	2	Mirror
978	1	Trigger Assembly	2665	2	Glass, Side Panel
17	1	Screw	2668	2	Partition, Mirror
340	1	Screw	2562	2	Moulding, Fluted
28	1	Nut, Hex	2561	2	Moulding, Mirror
977	1	Camera Assembly	2666	2	Felt, Mirror
961	1	Camera Relay Assembly	300	16	Screw
35	3	Screw	296	16	Washer
973	1	Door Assembly	2736	2	Panel Assembly, Side
531	33	Screw	110	2	Screw
575	1	Box, Cover & Outlet	2060	1	Shield, Insulating
385	1	Screw	971	1	Sign Assembly, Top Photo
157	1	Connector	598	1	Sign Assembly
576	1	Outlet	2700	2	Panel, Top Sign Photos
2730	1	Chute Assembly, Delivery	599	1	Nipple
15	6	Screw	289	1	Flange, Floor
27	6	Nut	214	3	Disconnects
1981	1	T-Bar Assembly	1668	1	Coin Box
11	2	Screw	1669	1	Holder, Coin Box
2434	1	Plate, Green Light	2713	1	Caution Label, Coin Box
15	6	Screw	394	4	Screw
27	6	Nut			
2608	1	Box Assembly, Green Light			
571	1	Spring			
124	1	Grommet			
27	2	Nut			
310	1	Light Assembly, Green			
2222	1	Gauge, Carrier Alignment			
385	1	Screw			
2711	1	Gauge Label, Carrier			
2629	1	Seat Assembly, Pedestal			
578	4	Bolt			
577	4	Nut			
573	4	Lockwasher			
2625	1	Pedestal Assembly			
2662	1	Screw Assembly			
2746	1	Insert Assembly, Seat			
591	4	Screw			
2021	1	Bushing, Guide			
358	1	Roll Pin			
2445	1	Collar, Seat Screw			
2530	2	Track, Long			
2531	1	Track, Short			

CABINET ASSEMBLY PARTS LIST

PART NO.	REQ'D	DESCRIPTION
975	1	Cabinet Assembly
563	15	Tile, Floor
2524	3	Spacer, Roof
2641	2	Spacer, Roof & Post
2502	1	Roof
595	3	Bolt, Carriage
1004-22	3	Washer
584	2	Bolt
1004-18	2	Washer
2515	1	Back Assembly
567	4	Screw
2519	1	Panel Assembly, Back
2517	2	Channel, Long Back
154	10	Screw
2518	2	Channel, Short Back
86	6	Screw
557	6	Screw
2513	1	Post, Left Back
2514	1	Post, Right Back

WIRING CODE LIST

CODE	DESCRIPTION	PART NO.	LOCATION
BLS	Bright Light Switch	1028-4	Camera
C	Strobe Condenser	473	Strobe Unit
C5	Strobe Condenser	523	Strobe Unit
CIC	Camera Latch-in Coil	532	Camera Relay
CIP	Camera Latch-in Contact Point	532	Camera Relay
CM	Camera Motor	1593	Camera
CO	Convenience Outlet	155	Fuse Box
COC	Camera Latch-out Relay Coil	532	Camera Relay
COO	Cut-off Solenoid, Paper	2658	Camera
COS	Cut-off Switch, Paper	2199	Upper Tray
CRO	Coin Reject Electromagnet	306-5	Panel Door
CS	Coin Switch	306-3	Panel Door
CSS	Camera Stop Switch	1028-7	Camera
DH	Developer Heater	589	#1 Chemical Tank
DHT	Developer Heater Thermostat	2637	#1 Chemical Tank
DIC	Developer Latch-in Coil	532	Camera Relay
DIP-1	Developer Latch-in Contact Point	532	Camera Relay
DIP-2	Developer Latch-in Contact Point	532	Camera Relay
DM	Developer Motor	246	Transmission
DMS	Developer Motor Switch	1028-5	Trigger
<u>DQ</u>	Developer Solenoid	2755	Trigger
<u>DOC</u>	Developer Latch-out Coil	532	Camera Relay
<u>DOP</u>	Developer Latch-out Contact Point	532	Camera Relay
DSS	Developer Start Switch	1028-5	Camera
DUM	Delivery Unit Motor	1978	Delivery Unit
DUS	Delivery Unit Switch	1028-5	Delivery Unit
ES	Electric Sign	971	Optional
FDM	Feed-Down Motor	1978	Feed-Down
FL	Fluorescent Light	593	Light Box
FLB	Fluorescent Light Ballast	592	Light Box
FLS	Fluorescent Light Starter	188	Light Box
FM	Fan Motor	1253	Strobe Shelf
FMT	Fan Motor Thermostat	561	Strobe Unit
GND	Ground Line		Harness
HTS	Heater Thermostat Switch	1028-14	Cabinet
IL	Instruction Light	304	Panel Door
ILS	Instruction Light Switch	1028-5	Camera
L-1	Line 1 110 V AC 60 CY		Harness
L-2	Line 2 110 V AC 60 CY		Harness
LF	Line Fuse	237	Fuse Box
LOS	Lower Strobe Tube	197	Panel Door
LS	Line Switch	155	Fuse Box
MC	Master Counter	307	Cabinet
MS	Manual Switch	535	Panel Door
PIL	Paper Indicator Light		Optional
PS	Paper Switch	2704	Camera
RS-3	Strobe Resistor	505	Strobe Unit
RS-4	Strobe Resistor	475	Strobe Unit
RS-5	Strobe Resistor	476	Strobe Unit
RT	Strobe Selenium Rectifier	617	Strobe Unit
SF	Strobe Fuse	526	Strobe Unit

CODE	DESCRIPTION	PART NO.	LOCATION
SIP	Strobe Relay-in Point	170	Strobe Unit
SOP	Strobe Relay-out Point	170	Strobe Unit
SRC	Strobe Relay Coil	170	Strobe Unit
SS	Strobe Hi-Low Switch	481	Strobe Unit
SSPD	Strobe Safety Switch	1028-14	Cabinet
TX	Strobe Transformer	521	Strobe Unit
ULS	Upper Left Strobe Tube	605	Light Box
URS	Upper Right Strobe Tube	605	Light Box
WLA	Warning Light, Green	310	Panel Door
WLB	Warning Light, Green	310	Outside Cabinet

WIRING COLOR GUIDE

NO.	COLOR
1	Black
2	White
3	Purple
4	Yellow
5	Red
6	Blue
7	Yellow & Red Tracing
8	Purple & White Tracing
9	Green
10	Yellow & Green Tracing
11	Purple & Green Tracing
12	Yellow & Black Tracing
13	Red & White Tracing
14	Red & Black Tracing
17	Blue & Black Tracing
18	Blue & White Tracing
19	Blue & Red Tracing
20	White & Black Tracing
21	White & Red Tracing
24	White & Green Tracing
25	Black & White Tracing
26	Black & Red Tracing
28	Grey

R. 11-764A
 FV 7B
 K

RQA
 F 11-764A
 FV 7B

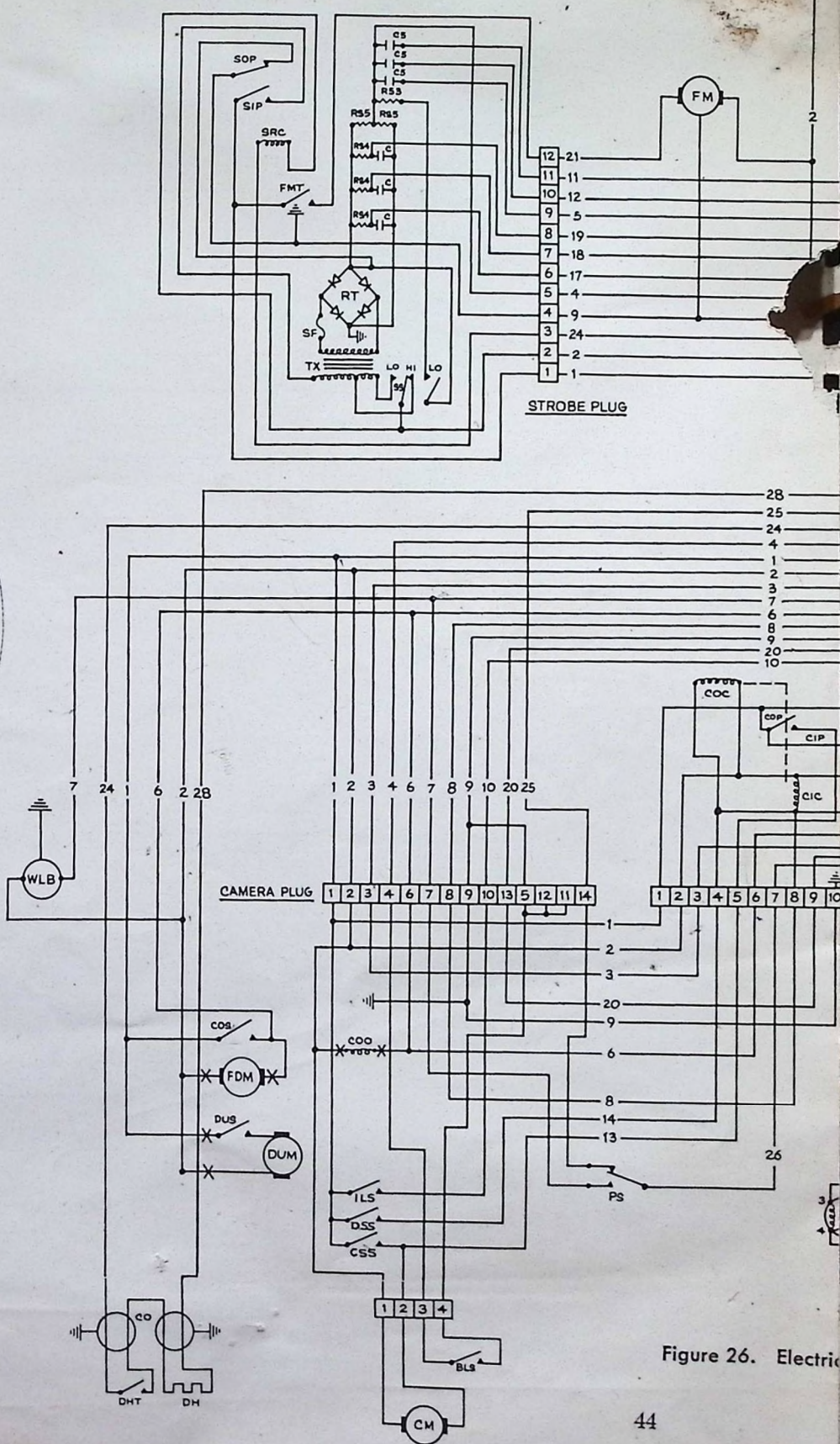
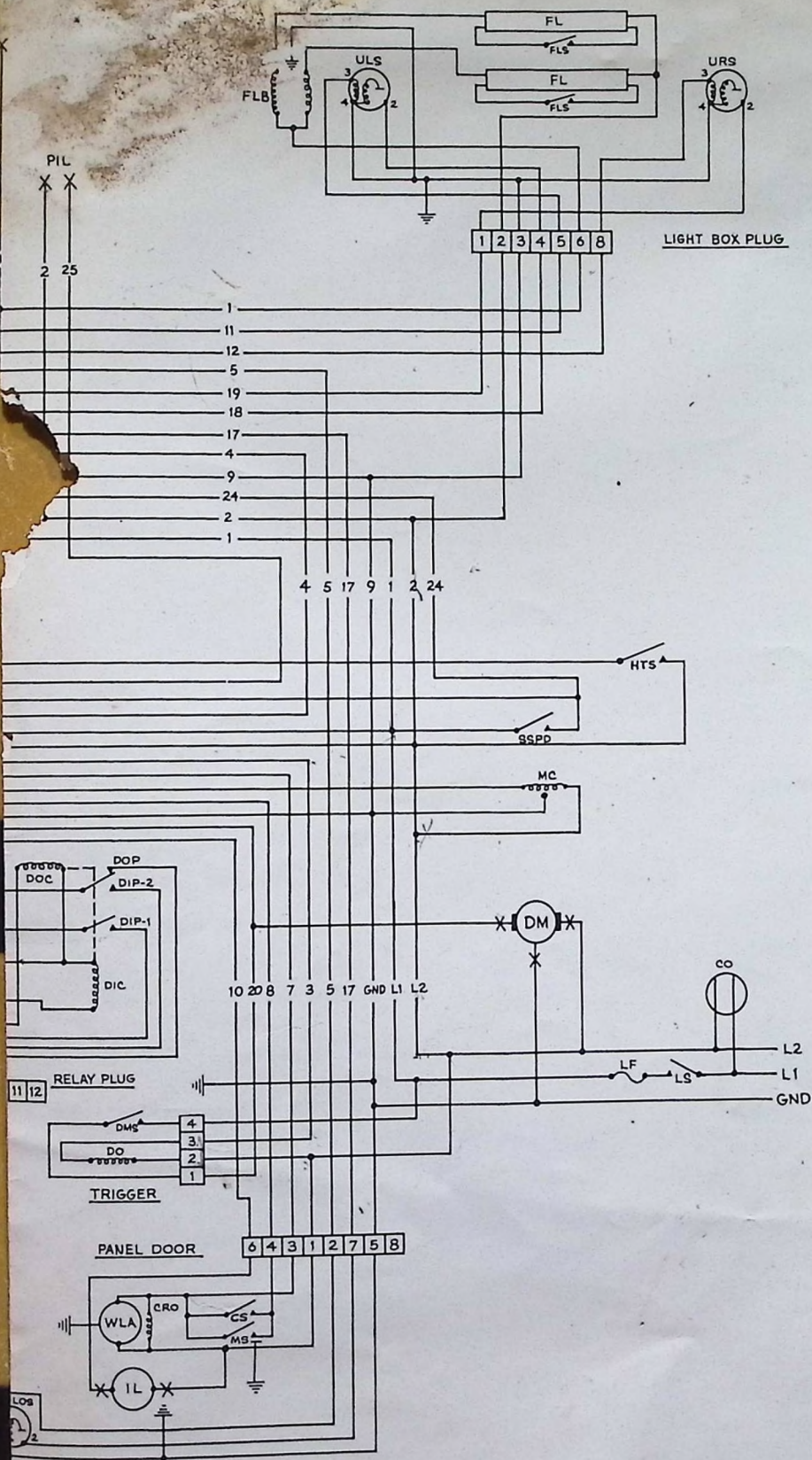


Figure 26. Electric

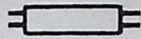


al Wiring Diagram

SYMBOLS



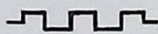
Motor



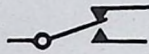
Fluorescent Light



Incandescent Light



Heater



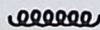
Switch - Double Throw



Switch - Single Throw



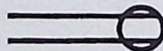
Fuse



Coil



Resistor



Convenience Outlet



Transformer



Condenser



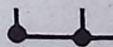
Ground



Strobe Tube



Selenium Rectifier



Wires Crossed & Electrically Connected



Disconnect

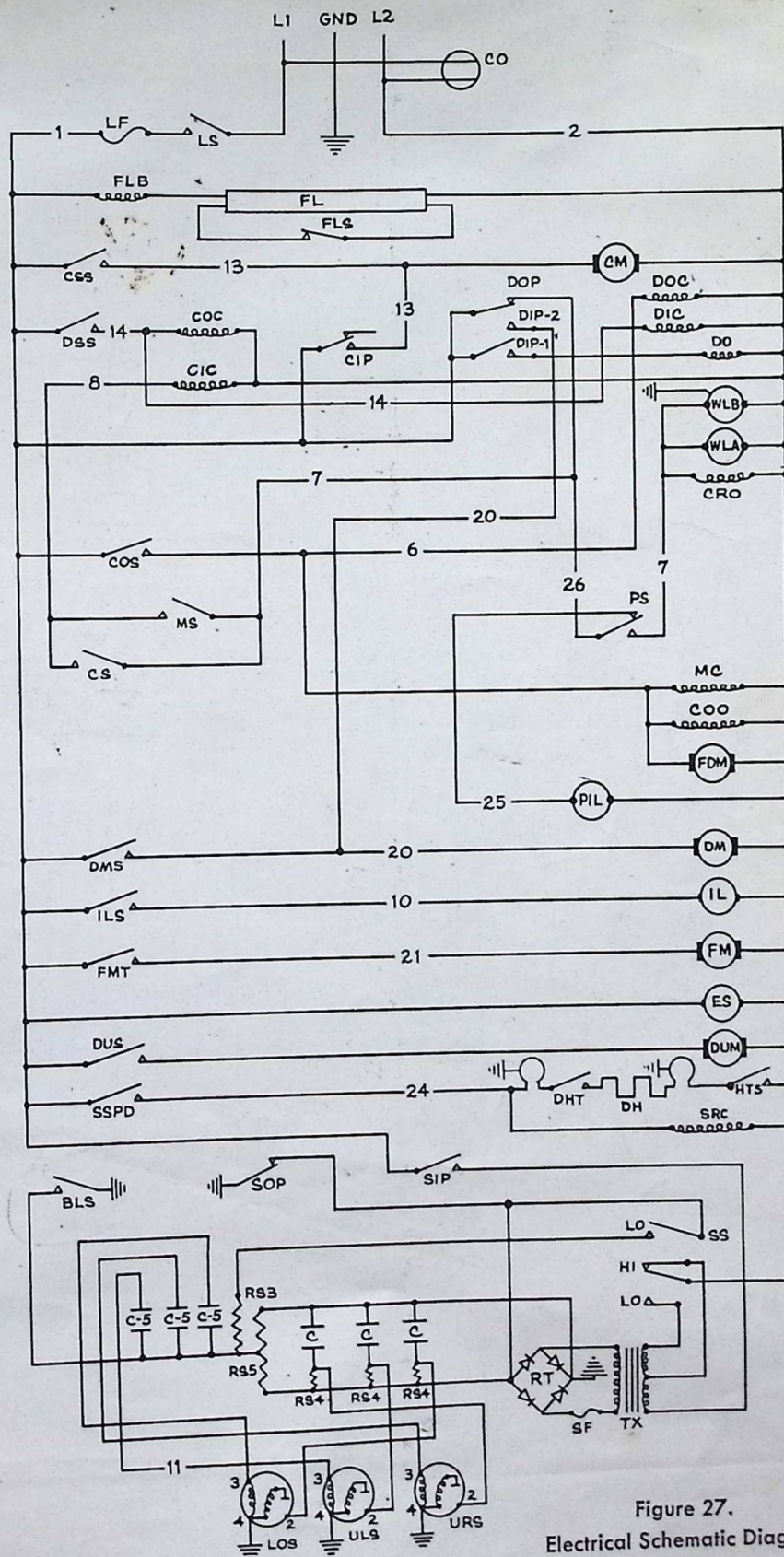


Figure 27.
Electrical Schematic Diagram